Contents

Part Number K2111A Issue 6 Jan 2008

ABOUT THIS DOCUMENT

This Service Manual Supplement is intended for use in addition to the main Maximailer Plus Service Manual. It covers only items specific to the Datacard Turnover Interface. Items included are:

Installation and setup.
Service operations
Exploded views
Electrical information, including circuits

For all parts relating to the main machine, refer to the Maximailer Service Manual.

CAUTION!

Prior to carrying out any maintenance procedures on the Maximailer, the following safety precautions must be observed:

- **Switch the machine OFF and disconnect the mains cable from the power supply - do not remove any cover before doing this. Failure to isolate the mains could result in death or injury!**
- **Before switching the machine back on after completion of maintenance work, ensure all external covers are in place and undamaged. Replace any covers that are damaged.**
- **Ensure all covers are undamaged. Check action of opening covers to confirm correct operation, and that safety microswitches function correctly. Check that all warning labels are legible. Exercise caution with moving parts and exposed electrical apparatus when covers are removed.**

Note: throughout this manual, any references to LH and RH are viewed from the far end of the machine, looking towards the insert head. Other wise, each side is referred to as Operator side (from operator's standpoint when viewing the display screen) or Drive side (opposite).

- If any covers are removed for maintenance operations is completed, they must be fully replaced upon completion, leaving no risk to operators.
- If damage to any cover has occurred, it must be replaced before the machine is used again.
- If any access cover safety switch fails allowing the machine to continue operating when the cover is opened, it must be replaced before the machine is used again.
- Do not cover any vents or openings, or overheating may result.

PUT SAFETY FIRST!

Section 1

Installation Instructions

Installation Instructions

1.1 Detachable Items

The machine is supplied on site with each module packaged separately and with stands supplied in flat-pack form. Check that the following detachable items are all present:

Insertion Head ADC31AA (115v) or EDC31AA (230v)

Comms Lead, Long	160-511	Qty. 1
Mains Lead	162-210 (UK)	Qty. 1
or Mains Lead	162-321 (US)	Qty. 1
or Mains Lead	162-311 (EURO)	Qty. 1
Catch Tray	R2211T	Qty. 1 (non-Conveyor only)
Cleaning Kit	A3104A (EURO)	Qty. 1
or Cleaning Kit	A3187A (US)	Qty. 1
Operating Instructions	K1216A	Qty. 1
Declaration of Conformity (230v only)		

Feeder ADC50AA (Single 115v), ADC52AA (Dual 115v), EDC50AA (Single 230v) or EDC52AA (Dual 230v),

Comms Lead, Short	160-510	Qty. 1
Screw, M5 x 10 Cap	E2516A	Qty. 4
Infill Cover	R2663S	Qty. 1

Datacard Turnover Interface A1453AA (115v), E1453AA (230v)

Comms Lead, Short	160-510	Qty. 1
Screw, M4 x 8 Pozi	E2701A	Qty. 2
Screw, M5 x 10 Cap	E2516A	Qty. 4
Infill Cover	B7868S	Qty. 1

Output Conveyor (optional) A1420BA (115v) or E1420BA (230v)

Mains Lead	162-210 (UK)	Qty. 1
or Mains Lead	162-321 (US)	Qty. 1
or Mains Lead	162-311 (EURO)	Qty. 1
DIN Lead	182-707	Qty. 1
Operating Instructions	K1203A	Qty. 1

cont.

Maximailer Plus Additional Items

Computer A5 ATX	184-642	Qty. 1
Keyboard & Mouse	184-645	Qty. 1
Touchscreen Monitor	184-646	Qty. 1
Washer, Foot	B2482C	Qty. 2
Mouse Holster	B9048T	Qty. 1
Monitor Post	R2736T	Qty. 1
Keyboard Holster	R2833T	Qty. 1
Cable Cover	R2834T	Qty. 1
Post Spigot	P2383A	Qty. 2
M4 Allen Key	E0091A	Qty. 1
Screw M4 x 6 Pan	E2538A	Qty. 4
Screw M4 x 10 Csk	E2632A	Qty. 10
Screw M5 x 30 Cap	E2634A	Qty. 2
M4 Nut	E3502A	Qty. 2
Maxi Plus Installation Instructions	K4039A	Qty. 1

Important: Check that all covers are in place and undamaged. Check that all warning labels are in place and legible (see section 1.5 for locations). Check that the mains lead and its connectors are sound and undamaged.

1.2 Machine Assembly

1.2.1 Remove the side covers and lower edge covers from the machine units, as described in section 3.1.2. Position the units on the stands and fasten them together using 2 off M5 x 10 screws each side on the vertical faces. Screws are supplied separately with the machine.

1.2.2 Check that the DIP switches on the feed module or DTI are set according to Fig. 1.1 below:

Module	DIP Switch ON Position			
	1	2	3	4
1	X			
2		X		
3	X	X		
4			X	
5	X		X	
6		X	X	
7	X	X	X	
8				X

Fig. 1.1

Note that module 1 is the first feed unit. The inserter head is hard-wired at switch position 4, with DIP switch removed. Location of the DIP switch for feed unit and 3-plate folder is shown in Fig 1.2 below:

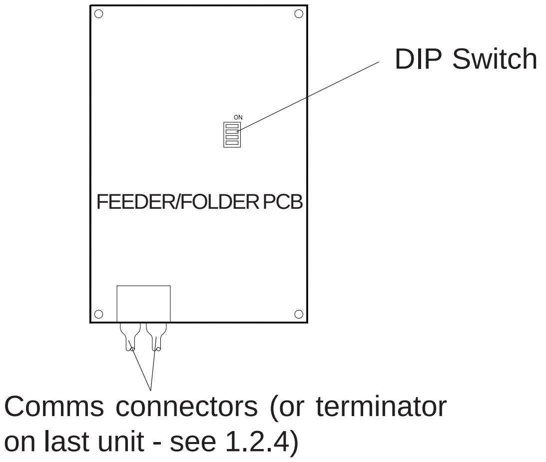


Fig. 1.2

1.2.3 Check machine package label on each unit for correct product codes and software compatibility, eg. **'Software Level V3.1xx'** must be on ALL units. The first two digits must be the same for compatibility; the second two can be different. Connect the units together with the Comms leads, plugged from one PCB to the next as a 'daisy-chain'. On each unit, the lead is plugged into one half of the PCB connector and coiled inside the unit. Locations of the connectors are shown in Fig. 1.2, and in Fig. 1.3 below, showing the Control PCB in the insert head:

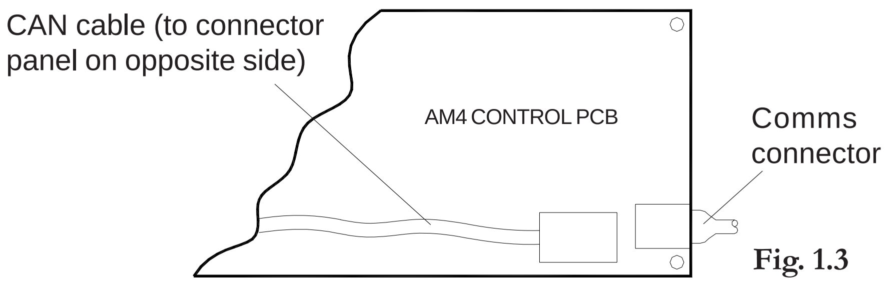


Fig. 1.3

Note: Comms lead for insert head (160-511) is longer than feed unit leads (160-510), which are all identical.

1.2.4 Check the T101 terminator link 182-557 is fitted on the last feed unit PCB (see Fig. 1.2). Check that the CAN cable is in place on the Control PCB (see Fig. 1.3).

1.2.5 Starting from the last feed unit on the machine, connect the power leads from each module to the one in front. Connect the power lead from the mains to the insert head. At this point, installation for a Maximailer is complete, and the 3 steps below should be carried out. If the machine is a Maximailer Plus, the PC and monitor will need to be assembled - proceed to section 1.3 on the following page.

1.2.6 Enter Engineer mode and check the machine configuration (see section 3.12 of the Maximailer Service Manual 'Configure System'). If not configured, do so now.

1.2.7 Switch the machine on and run in burn-in mode for a while to check all is OK. If required, run installation checks and setup described in section 1.4 on page 1-9. Not all checks will necessarily apply, **but it is important they are performed where necessary,** particularly if operating problems occur on the customer's job.

1.2.8 Switch off and refit all covers. Fill the wetter with fluid and instruct operators how to run the machine, change or set up jobs etc., as appropriate. **Particularly instruct operators how to clean sensors.**

1.3 Monitor and PC

The monitor and PC will now need to be connected. These are supplied separately from the machine modules.

1.3.1 Assemble the 2 spigots to the insert head stand, as shown in Fig. 1.4 below. Holes are predrilled in the back face of both the LH and RH cupboards, allowing either position to be used.

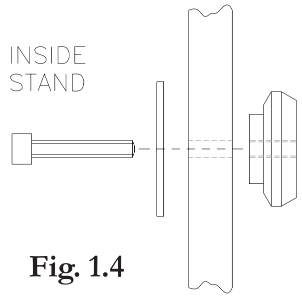


Fig. 1.4

1.3.2 Slide the keyhole slots on the monitor stand onto the spigots. Assemble the keyboard holder to the side of the stand as using M4 x 10 Pozi countersunk screws and nuts. Using double-sided adhesive tape, attach the mouse holder to the cover of the insert head or any other location as desired. Note that the keyboard holder can also be mounted on the other side of the stand if desired. At this stage, do not attach the monitor post cover (shown in Fig. 1.5 below).

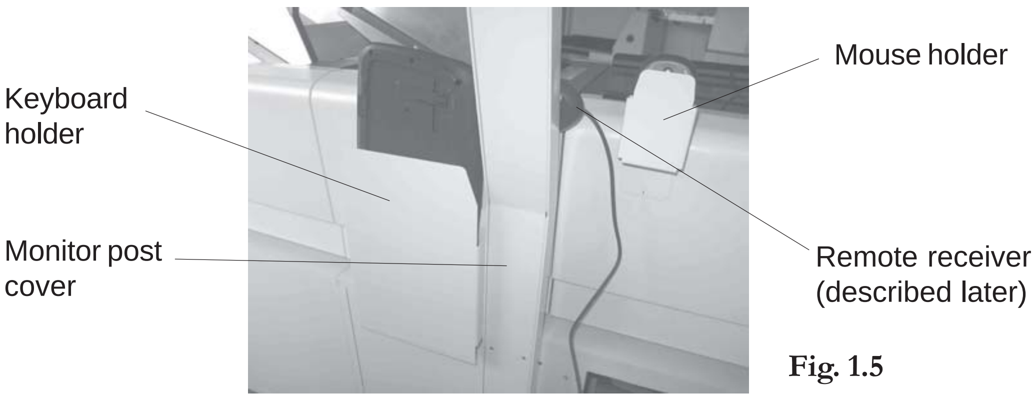


Fig. 1.5

1.3.3 Separate the monitor screen from its stand: unclip the rear half of the plastic shroud, then remove the cover over the pivot mounting; this unclips by pulling it backwards, using a small screwdriver to release the two clips at the top edge. Take out the 4 screws securing the pivot bracket to the stand (see Fig. 1.6 below).

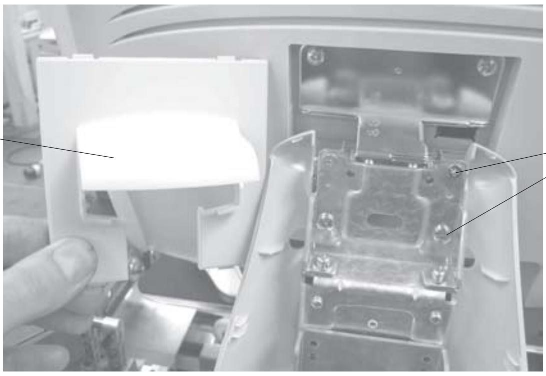
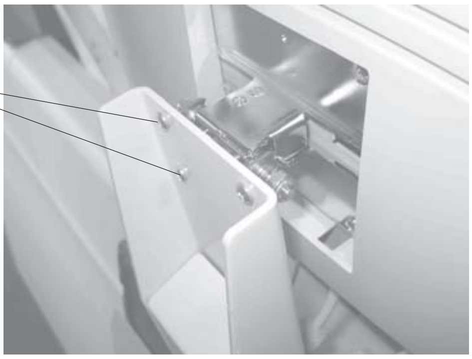


Fig. 1.6

1.3.4 Attach the monitor screen to the post using 4 off M4 x 6 screws, as shown in Fig. 1.7 below. Feed the cables through the aperture below the screen and plug them into the connectors on the lower edge. There should be 2 x colour-coded 'D'-type leads (one dark blue, one turquoise), 1 x mains lead and 1 x 3.5mm jack lead for sound - connect the light blue end to the monitor. Also include the lead for the keyboard/mouse receiver so that the receiver end is close to the aperture. Attach 2 equal length strips of self-adhesive magnetic tape to the back of the receiver and stick it to the front of the monitor stand. Attach the rear cover to the monitor post (see Fig. 1.5) using 8 off M4 x 10 countersunk screws.



***Note:** the monitor stand may have keyhole slots for the screws, not holes*

Fig. 1.7

1.3.5 On the insert head stand, remove the top, slide out the inner panel and refit the top. This allows the PC to be fitted inside the stand, with the rear face towards the open section, or if desired, simply place the PC on the floor behind the stand.

1.3.6 If the PC is not already configured, load with ES1400AA operating software.

1.3.7 Connect the PC to the monitor and Maximailer CAN connector as shown in Fig. 1.8 opposite. Plug the PC and monitor mains leads into suitable power sockets.

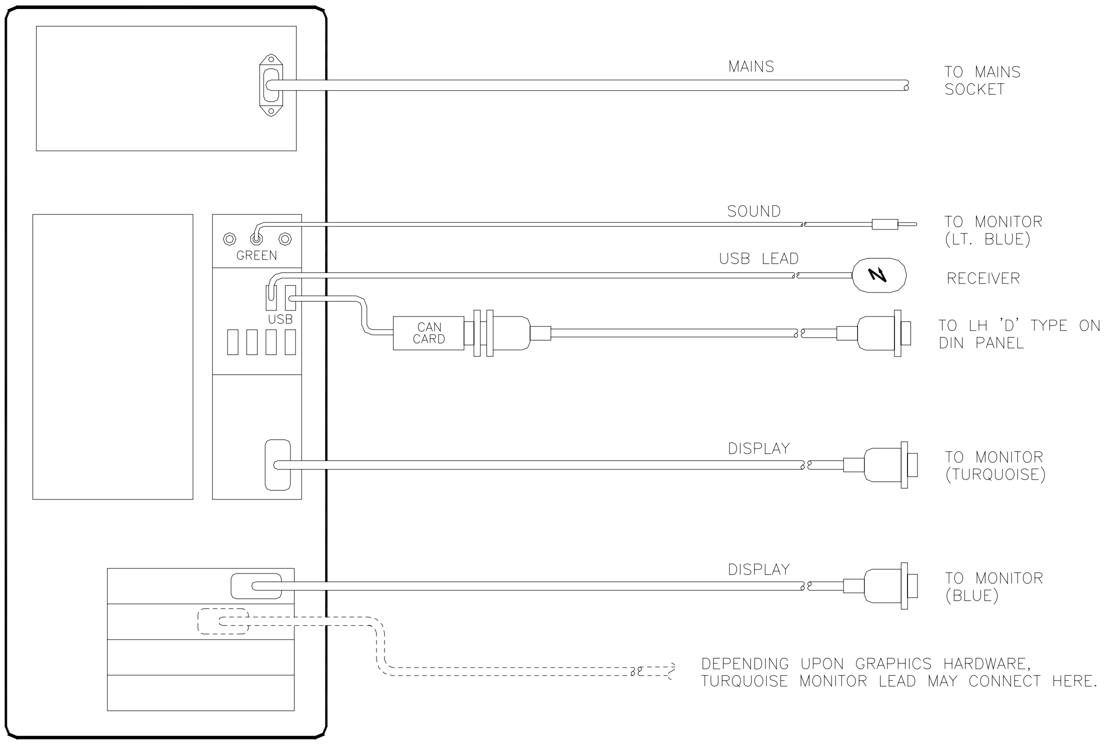


Fig. 1.8

Hard wiring

1.3.8 The mains bracket assembly is supplied with an unterminated cable for connection to an isolator box or socket. If connecting to a socket, it must conform to IEC 60309 or equivalent national standard. If in doubt, contact PFE Technical Support. **Note that a high leakage current earth connection on the supply is essential.**

1.3.9 If previously removed, fit the wiring skirt B1870T.

1.3.10 Refit the side covers and test run the machine after performing some or all of the suggested checks described on the following page. Not all checks will necessarily apply, **but it is important they are performed where necessary,** particularly if operating problems occur on the customer's job.

1.4 Installation checks and setup

Note: references are made throughout of Technical Tips and Technical Bulletins - these documents can be downloaded from the PFE website if required (www.pfe.co.uk).

Initial Setup

1) Set up customer default envelope, form and insert sizes in Supervisor 123 (this is initially factory set but may be changed as required).
2) Check all Analogue and Digital Sensors are OK. Note, if the reflective sensors are being affected by sunlight - if so, move the machine out of light sensitive areas. If this is not possible ref technical tip item 21.
3) Check all drives in Engineer 451 are OK.

Running Customer's Jobs and setup required
Setup, run ALL customer jobs and check for the following:

Envelope contents - folded correctly with address is in the window.
If not, adjust address in calibration cycle or adjust within job as required.
Note this must be carried out for each job (unless the job is copied).

Number of forms in the envelope is correct, i.e. no doubles etc.
If not, do you need to carry out-
Any adjustments on the envelope or insert feeder separator mechanisms.
Require different pickup tyres (see technical tips, item 8),

Check for good insertion

Run machine at speed 1 (walk mode) with covers linked-out to highlight insertion area.

The following checks (and adjustments) are required to ensure good insertion of documents:

a) Check that the fingers and collate pocket are setup correctly (Ref manual page 3-16).
b) Check 2mm clearance in the collate pocket with widest insert - this can be adjusted if required in Engineer.
c) Engage and disengage fingers in Engineer to ensure both solenoids are pulling-in and that the stroke is balanced and setup (4mm from plunger slot to solenoid body - note this can be reduced if required).
d) Check envelope stop position is correct for the envelope - creaseline should line within the notch of the envelope feed bridge. The stop posn can be moved forward (e.g. +ve takes the envelope towards the wetter area). Note that if this is too far back it can restrict the envelope from opening.
e) Fingers are cleanly entering envelope, not tearing the edge or getting caught on the window. If so, the fingers can be moved inwards or special fingers can be fitted - see technical tips items 7 and 13.
f) Documents are i) inserted too far into envelope - causing envelope to lift over wetter beam or ii) inserted too shallow - causing box folding in sealing. If so, 'Insert in env pos' can be adjusted (e.g. +ve pushes the insert into the envelope).

g) Pawls are stopping consistently before reaching the collate pocket and insertion area - this can be caused by i) brake not engaging correctly ii) pawls digital sensor not working iii) wetter fluid on the splitter board mounted directly under the wetter tank. Note iii) mainly caused by moving machine without draining wetter tank - a shield can be fitted see technical tips item 30.

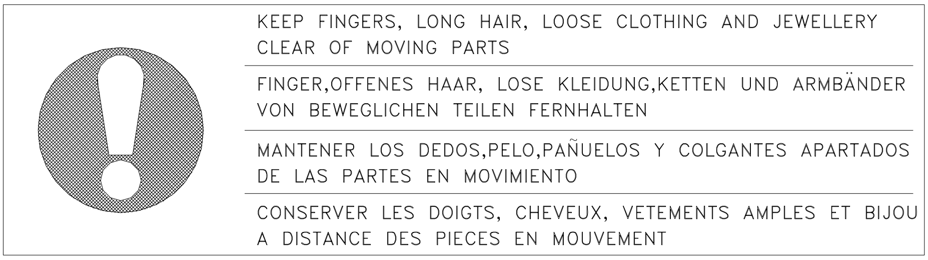
h) Collate Pocket Issues may need to be incorporated - see technical tips item 22.

<u>Check for good consistent wetting</u>

Check and ensure wetter is setup as per Technical Bulletin 1420/101 at first instance.

1.5 Locations of Labels

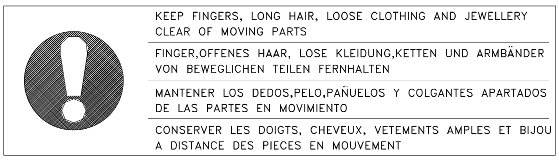
There are a number of warning labels on the Maximailer, all of which must be in place and legible. If any are damaged or missing, they must be replaced. Labels used are indicated below, shown full size.



G3068A

Located:

In front of envelope hopper on insert head
On front vertical face of closer cover on insert head
In front of paper tray on each feed unit



G3410A

Located:

On 2-plate folder, top tray, each sideguide.

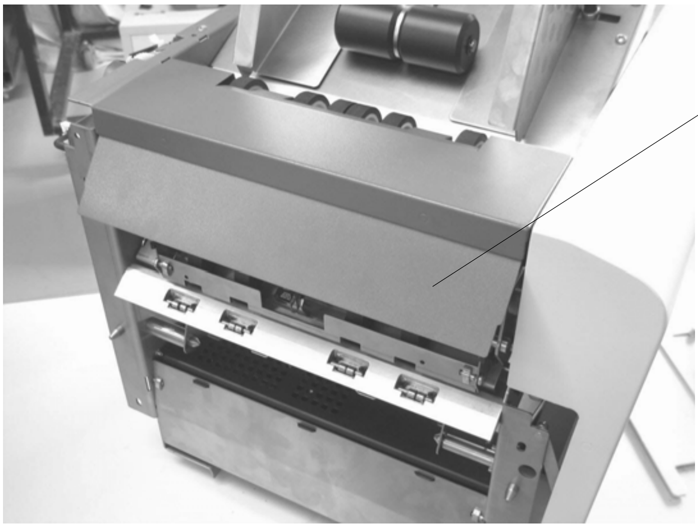
Serial Number Plates

There is also a serial number plate for each module, which must be in place and legible. These are silver coloured, and located as shown below:

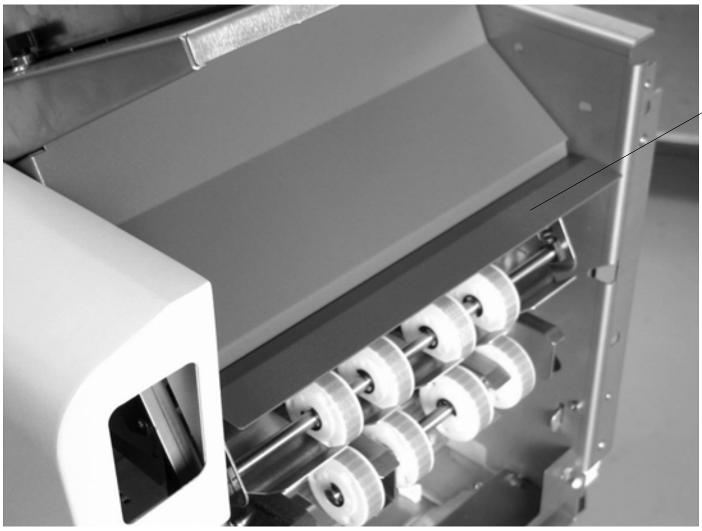
Insert Head: Next to mains input, above serial port connector panel.
Feed Units/DTI: Underneath paper tray

1.6 Infill covers

When a feeder is fitted (single or dual), an infill cover may be fitted in front and behind, depending upon the exact configuration. The infill covers, R2663S and B7868S, and their usages are shown below:



R2663S
Fitted in front of feeder when the unit in front is another feeder (single or dual), but not the insert head.



B7868S
Fitted behind feeder when the unit behind is a DTI, ie. in all cases where a feeder is fitted.

1.7 Connecting the Maxsys

1.7.1 The Maxsys physically connects to the Datacard Turnover Interface using Connecting Bracket Kit A3288A, as shown in Fig. 1.9 below. An exploded view of the assembly is also shown in section 4.8. Note that the brackets are adjustable in all directions – adjust the brackets so that the infeed tray is positioned as shown in Fig. 1.9, such that folded documents pass smoothly onto the conveyor (see also section 3.2.1).

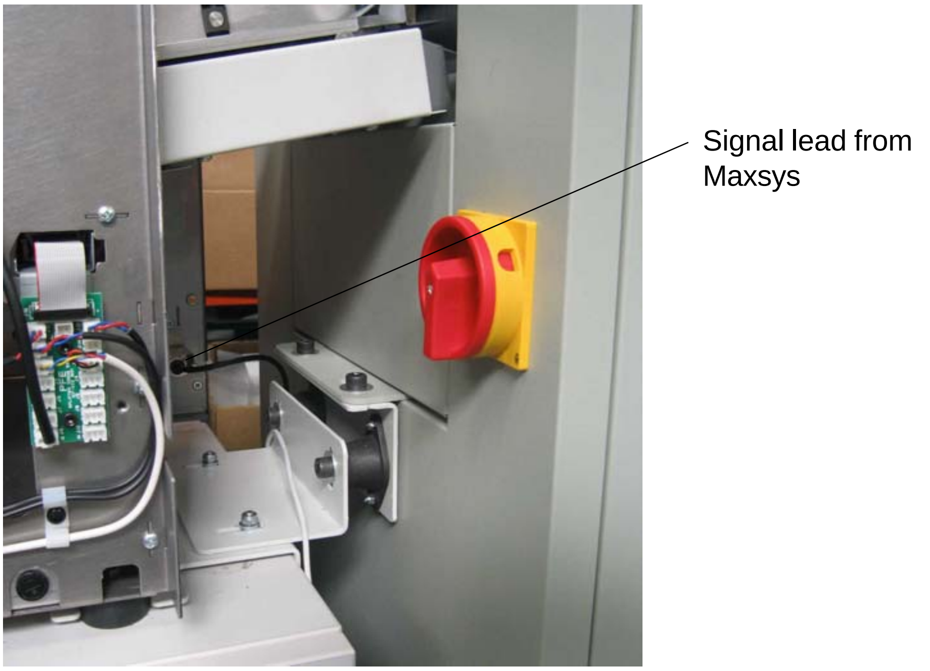


Fig. 1.9

1.7.2 Plug the signal lead from the Maxsys into the connector on the side of the DTI, as shown in Fig. 1.9 above.

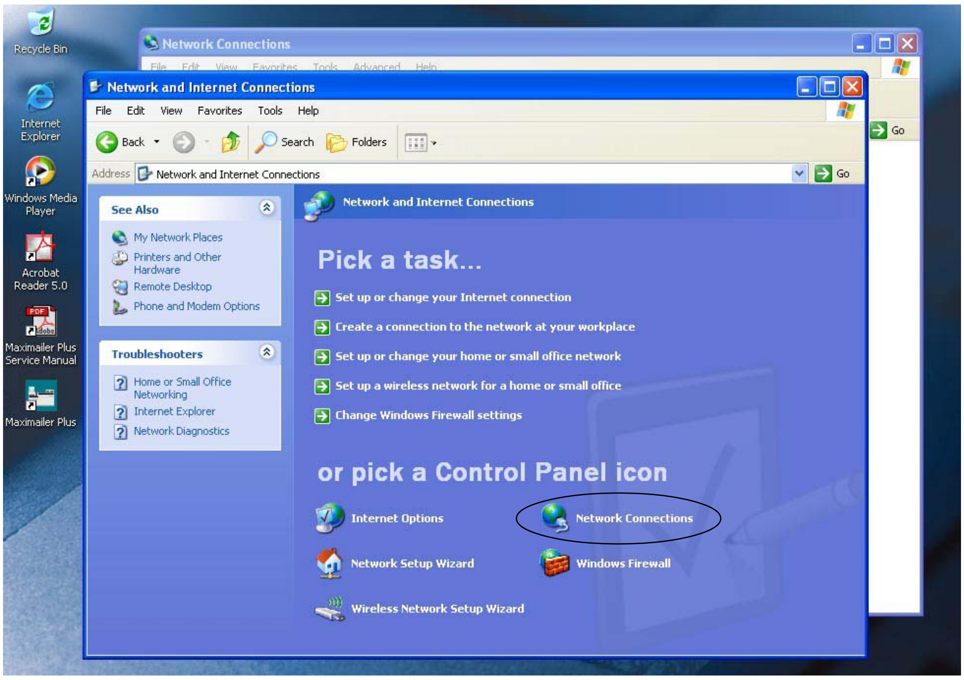
Note: on some machines, the signal lead may exit from a cutout above the Maxsys connecting bracket.

1.7.3 If the machine is to be networked, see section 1.7.

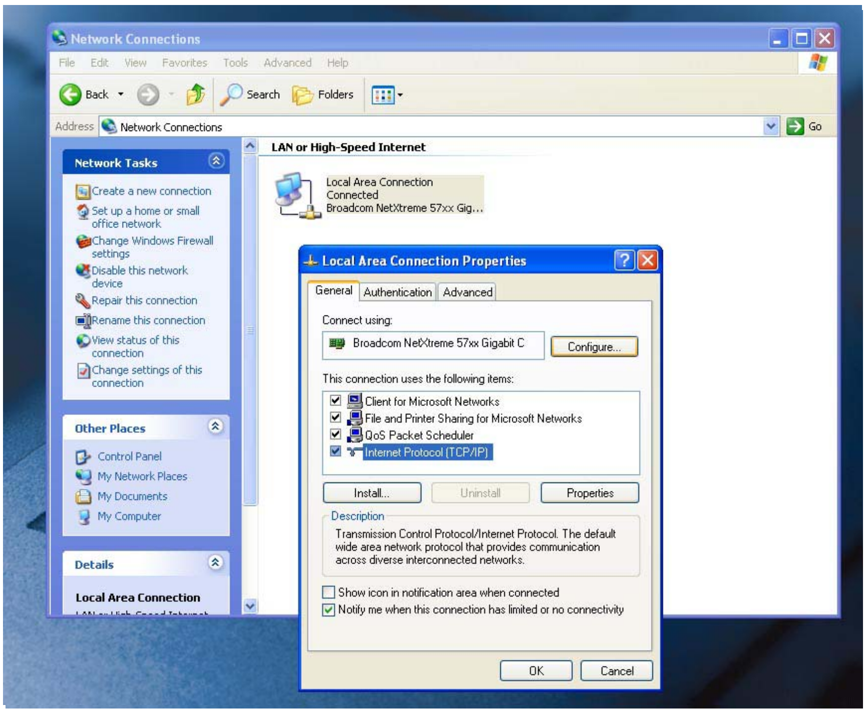
1.7.4 To calibrate the DTI, see section 3.2.6.

1.8 Networking the Maxsys to the Maximailer

1.8.1 On the Maximailer Plus PC, select Control Panel from the Start menu and select Network Connections, then Network and Internet Connections and Network Connections:

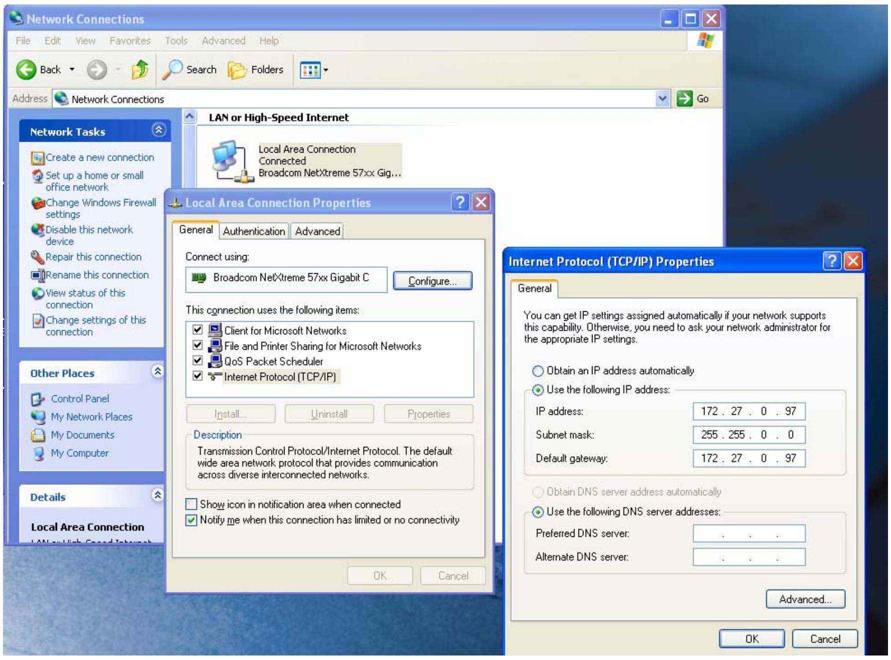


1.8.2 Right-click on Local Area Connection and select 'Properties', then Internet Protocol TCP/IP and 'Properties':

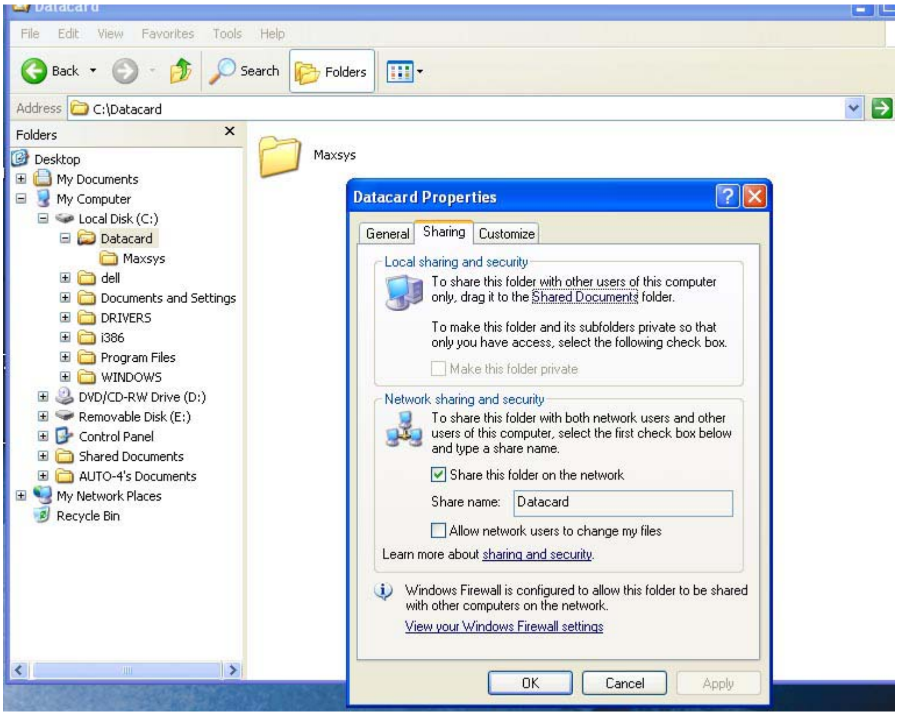


1.8.3 Enter the following settings in the Internet Protocol (TCP/IP) Properties box:

IP Address	172.27.0.97
Subnet mask	255.255.0.0
Default gateway	172.27.0.97



1.8.4 Open Windows Explorer and find the C:\Datacard folder. Right-click on it and select Properties/Sharing. Select 'Share this folder on the network' as shown below.



Section 2

Description of Operation

Description	Page

2 DESCRIPTION OF MACHINE

2.1 Overview

The function of the Maximailer Plus is to feed forms from a Datacard Card Processor and/or a number of hoppers, fold them in either 'C', 'Z', 'V' or double forward fold (where required) and insert them into an envelope which is then sealed and ejected. The folded card carrier is supplied from the Card Processor via the Datacard Turnover Interface which turns it over before feeding it onto the track; the document will then be orientated correctly for the address position. Further inserts (cards, cheques etc.) or folded forms may optionally be collated with the card carrier by collating on the track. All documents are then gathered in the collation pocket at the inserter head for insertion as one pack into the envelope.

2.2 Sequence of events (see Fig. 2.1 below)

When the folded insert is fed from the Maxsys into the DTI conveyor, its arrival is monitored by the leading edge passing the conveyor entry sensor. After the trailing edge has passed this sensor, the conveyor brake stops the conveyor until the cassette is clear of the previous document. When ready, the conveyor clutch drives the insert towards the cassette. As its leading edge passes the conveyor exit sensor, the cassette drive brake holds the cassette rollers stationary. The leading edge drives into the nip of the rollers to deskew the document. The cassette forward or reverse clutch then engages to drive the document into the cassette. Which clutch actuates depends upon the position of the cassette, due to rotating through only 180º per document, not 360º – when the cassette is in the 'up' position (ie. sprung roller shafts uppermost), the forward clutch applies. With the 'down' position (geared roller shafts uppermost), the reverse clutch applies.

cont.

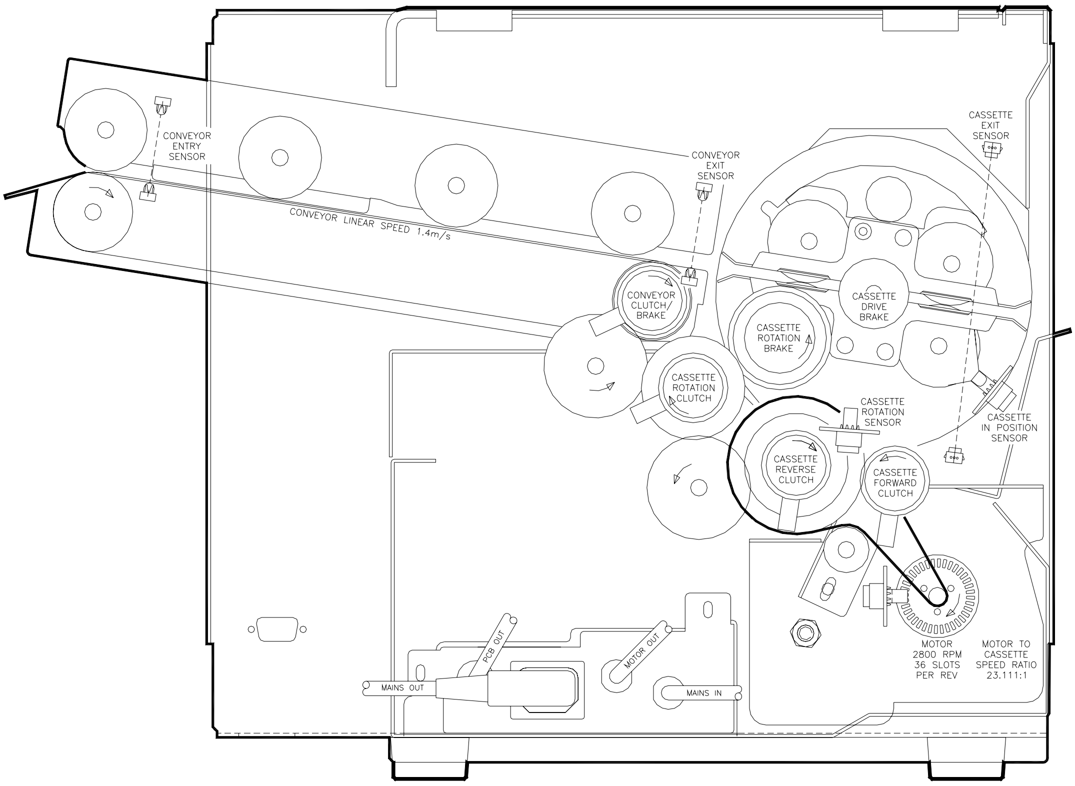


Fig. 2.1

When the document is centred in the cassette (as measured by clock pulses, its length being known), the cassette rotation clutch actuates to rotate the cassette through 180º, and is then stopped sharply by the cassette rotation brake. The cassette rotation sensor monitors the start and stop of the rotation cycle, while the cassette in position sensor confirms it has stopped in the right position, with the sprung roller located exactly in the detent of the cassette side plate (this can be adjusted in Engineer mode - see section 3.2.6).

When the path ahead is clear, the cassette forward/reverse clutch engages to drive the document out of the cassette and into the infeed of the Maximailer. The cassette exit sensor tracks the leading and trailing edges to confirm its passage, and to signal that the cassette is now ready to accept the next document, and the cycle repeats.

2.3 Electrical description

Power to the machine is supplied via a 230v or 115v Power Supply Unit 184-168 (the same unit is used for either voltage). Output is 26v & 7v, the 26v supply for solenoids and clutches being regulated down to 24v by the main PCB. The 7v supply is regulated down to 5v for PCB functions and sensors.

An overvoltage protection is built into the PSU to protect the PCB so that if, for example, a 24v supply cable were plugged into a sensor socket, the PSU would switch off its supply to the PCB to prevent damage. This would remain until the fault was removed.

A 26v switched supply is delivered for interlocks such as cover switches, so that if a cover is opened while the machine is running, the 24v supply from the PCB will switch off, disabling the clutches.

A Long Range Sensor PCB 180-790 is fitted for the cassette exit sensor, as this sensor has the emitter and receiver spaced a long way apart.

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Section 3

Maintenance and Operating Adjustments

CAUTION!

Prior to carrying out any maintenance procedures on the Maximailer, the following safety precautions must be observed:

- **Switch the machine OFF and disconnect the mains cable from the power supply - do not remove any cover before doing this. *Failure to isolate the mains could result in death or injury!***
- **Before switching the machine back on after completion of maintenance work, ensure all external covers are in place and undamaged. Replace any covers that are damaged.**

PUT SAFETY FIRST!

3.1 PREVENTATIVE MAINTENANCE

Items shown in this section relate only to the Datacard Turnover Interface, and should be carried out at the same time as service on the main Maximailer. See the full Maximailer Service Manual for preventative maintenance details.

3.1.1 GENERAL

1. Ask how the machine has been working lately and use this information as a guide for checking the machine.
2. Ask if there has been a change of use, eg. high production runs or any change of material.
3. Switch on machine and confirm that no errors appear on the display screen.
4. If necessary, generally instruct the operators again with regard to their specific problem area.
5. When all service or repair operations have been carried out, the machine must be left with all parts reassembled, leaving no risk of injury..

3.1.2 REMOVAL OF COVERS

Note: throughout this manual, references to LH and RH are viewed from the far end of the machine, looking towards the insert head. These may also be referred to as Operator side (viewed looking at the display screen) or Drive side (opposite).

Some or all of the following covers may require removal for maintenance operations. *Ensure all covers are undamaged. Check action of opening covers to confirm correct operation, and that safety microswitches function correctly. Check that all warning labels are legible. Exercise caution with moving parts and exposed electrical apparatus when covers are removed.*

Removal of covers (cont.)

1. **LH & RH side covers:** Lift the top perspex cover. For each side cover, remove the 2 screws and star washers inside the chassis face, near the top edge. Lift each cover upwards to free the locating lugs.
2. **LH & RH wiring skirts:** Remove side covers, as above. For each wiring skirt, remove the 2 screws and star washers on the lugs and lift off the skirt.
3. **Conveyor cover:** Remove 4 screws underneath and slide the cover off.
4. **Top perspex cover:** Should not normally need removal unless damaged. To remove, take out the screws securing the cover to the hinge rather than the hinge pin to the chassis.

3.1.3 SERVICE AT 6 MONTHS OR 1 MILLION INSERTS

1. Implement the actions in section 3.1.1 'General'.
2. Implement service actions for the appropriate modules as described in the Maximailer Service Manual.
3. Raise the upper conveyor and clean the feed rollers and conveyor belts using Rubber Roller Restorer E0483A. Check belts are not worn, cracked or damaged - replace if so.
4. Check condition of the drive belt on the drive side and replace if cracked or damaged. Ensure tension is correct (tight, but not overtight).
5. Check the detent plunger is working smoothly and is not sticking (plunger is greased at factory). Clean and re-grease if necessary.
6. Check there is no radial play in the cassette bearings. Replace if worn (section 3.2.3).
7. Clean all sensors using Non-Flammable Airduster E0070A (section 5.2 for locations).

3.2 MAINTENANCE AND ADJUSTMENTS

3.2.1 Conveyor height adjustment

The conveyor is adjustable for height to match the output from the Maxsys Card Processor. If adjustment is required, proceed as follows:

> Referring to Fig. 3.1 below, slacken the 2 adjustment screws on the plate below the conveyor. Slide the plate to raise or lower the conveyor so that the folded document feeds smoothly from the output rollers of the Maxsys into the nip of the conveyor rollers on the DTI. Tighten the screws when adjustment is complete.

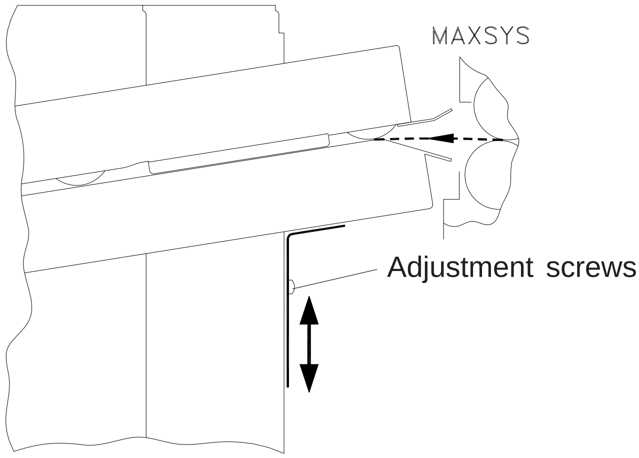


Fig. 3.1

3.2.2 Conveyor roller adjustment

The upper conveyor conatins 4 roller shafts, 2 of which are adjustable. These are factory set and are not operator adjustments; in the great majority of cases, no adjustment will be required.

However, if longer than normal folded documents are being processed. It may be necessary to move the rollers back. Refer to Fig. 3.2 below and overleaf:

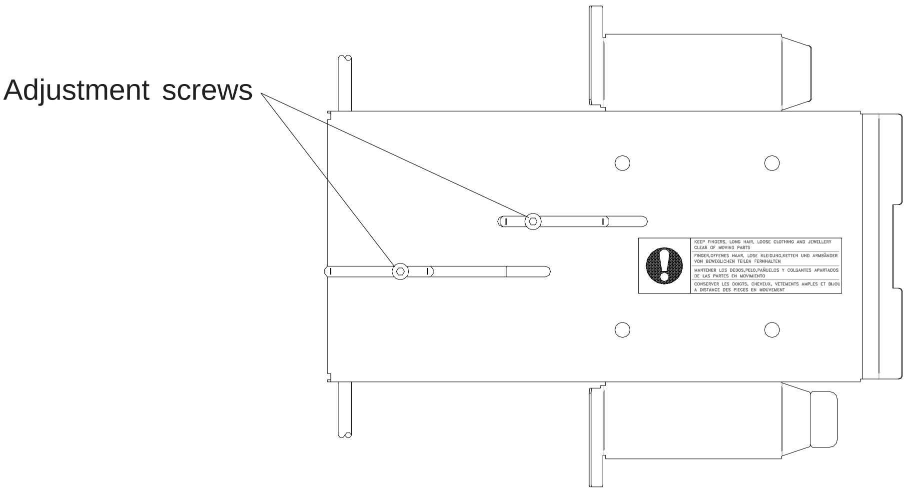


Fig. 3.2

3.2.2 Conveyor roller adjustment (cont.)

The required adjustment is for the conveyor to still just be driving the document as it reaches the nip of the infeed rollers of the cassette. The factory setting for this is optimised at approximately 89mm (3.5") which will suit the great majority of documents. If however, they are buckling as they transfer into the cassette, adjust the rollers as follows:

1. Slacken the screw closest to the inboard end of the conveyor. Move the rollers back approx. 6mm (1/4"), then tighten the screw.
2. If the rollers are moved by much more than this amount, slacken the second screw and move the rollers back so that the 2 sets of rollers are as widely spaced as possible, while still maintaining contact with the document. Tighten the screw.
3. Note that the above settings are guidelines only and further adjustment may be required after performing running tests.

3.2.3 Cassette removal

The cassette will require removal for replacement of the rubber rollers. To remove it, proceed as follows:

1. Remove the LH & RH side covers (see 3.1.2).
2. On the LH (operator) side, take off the gear shown in Fig. 3.3 below by removing the 'E' clip. Note the drive pin behind the gear. Also remove the second 'E'clip next to the bearing.
3. On the LH side, remove the screw securing the sensor bracket (see Fig. 3.3) and move the bracket so that the sensor is clear of the cassette side plate (viewed from inside the machine).

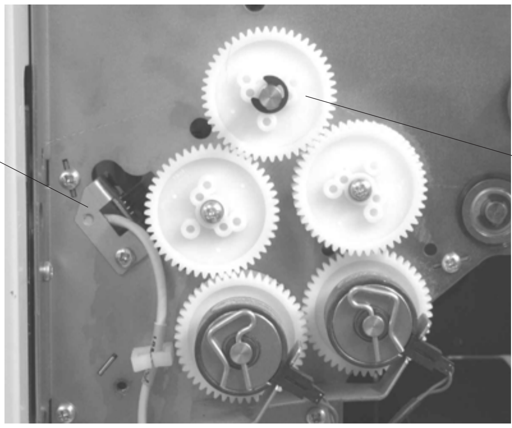


Fig. 3.3

4. On the RH (drive) side, unclip the cables to the two friction clutches, cutting any cable ties as required. Disconnect the cables from the splitter PCB.
5. As on the LH side, remove the screw securing the sensor bracket and move it clear of the cassette side plate.

6. Referring to Fig. 3.4 below, take out the 3 screws securing the cassette outer plate on the RH chassis side. Withdraw the cassette, rotating as required to work the skis through the cutout. Ensure the cassette is withdrawn in a straight line so that the stub shaft on the LH side will slide through the bearing.

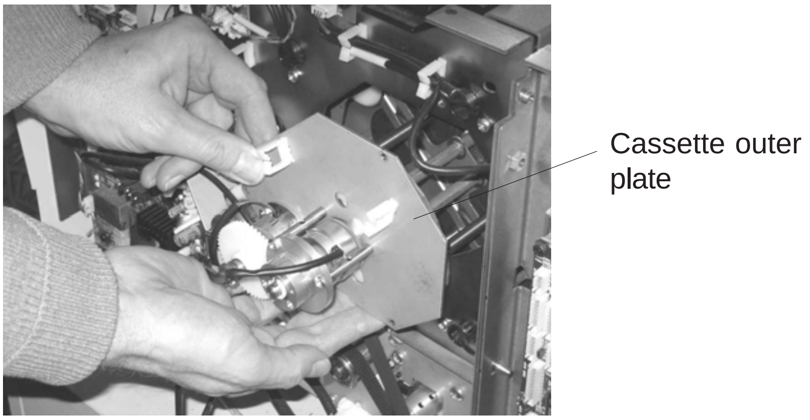


Fig. 3.4
Showing cassette being withdrawn

7. Replacement of the cassette back into the machine is a reversal to removal. When reconnecting the cables for the clutches, note that the PCB connector numbers are marked on the plug on the cable. Route the cable back through the clips, looping up spare as required and securing with new cable ties 169-102. Ensure the sensor brackets are properly located (there is a location pip on the bracket).

3.2.4 Roller shaft removal

With the cassette removed, the rubber rollers D0044A can be replaced. Two of the shafts are gear driven, while the opposite pair run in sprung ‘T’ bearings. To take out the geared shafts, remove the gear and drive pin at the LH end (on the outside of the chassis plate), and then the ‘E’ clip next to the flanged bearing. This allows the shaft to slide over to free the flanged bearing at the other end so that the shaft can be lifted out. To take out the opposite shafts, remove the ‘E’ clips next to the ‘T’ bearings, slide the bearings/springs out of the cutouts and lift out the shafts.

All 8 rollers should always be replaced together. The rubber rollers are a tight fit on the shafts, and assembly of the new rollers will be eased by use of a rubber lubricant such as P-80. **Note:** the 2 score rings round the shaft mark the outside face of the roller.

3.2.5 Conveyor removal

Upper conveyor

1. Remove the side covers (see section 3.1.2).
2. On the drive side, unplug the conveyor sensors from the splitter PCB and pull the cable inside the chassis. Remove the screw at the end of the shaft and lift out the conveyor by inserting the shaft end through the cable hole to free the other end (see Fig. 3.5 below).

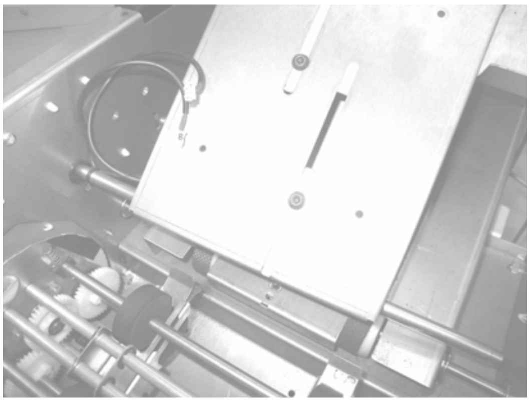


Fig. 3.5

Lower conveyor (and conveyor belts)

3. Remove the cover on the lower conveyor (4 screws underneath).
4. On both sides, slacken the screw securing the clutch locators and remove the clutch or brake at each end of the conveyor shaft. Also slide off the gear on the drive side.
5. Remove the 'E'clip, flanged bearing and waved washer on each side and lift the conveyor out of the chassis. To remove the belts, take off the 'E' clips, 'T' bearings and springs on the tension shaft and slip the belts off the ends of the conveyor.
6. Replace all parts in reverse order to removal. Note that the sensor PCB connector numbers are marked on the ends of the cables. On the drive side, ensure the lug of the friction clutch is properly secured in the locator.

3.2.6 Calibrating the DTI

1. Visually check the form is properly centred in the DTI cassette and that when the form turns over it is not being obstructed/fouled by the surrounds.

   If the form needs centering then adjust via the PC as shown below. You must first enter the Engineering screen and click on 'Units Setup' (on the RH side of the screen). Select the DTI by pressing 'Select Unit' at the bottom of the screen.

   Definitions

   Nominal Centre = folded document is in the centre position between the 4 transport rollers in the DTI cassette.

   UP Form or cassette UP = when the DTI cassette is positioned so that the springs on the 4 transport rollers are uppermost.'

2. Adjustment (see Fig. 3.6 below)

   UP Form Centre Calibration (mm): moves the document in the Cassette UP position from the nominal centre, e.g. -2 moves the paper 2mm back. Note: this position is judged before the document is turning.

   Down Form Centre Calibration (mm): moves the document in the Cassette DOWN position from the nominal centre, e.g. 2 moves the paper 2mm forward. Note: this position is judged before the document is turning.

3. Now check whether the cassette is turning and stopping in the detent positions. If not, then adjust the detent position as described below:

   UP Detent Calibration (deg): nominal degrees of rotation when rotating to the Up detent, e.g. -6 rotates the cassette 6 degrees less than nominal required to get into the detent.

   In this case the cassette has rotated too far and gone past the detent.

   Down Detent Calibration (deg): nominal degrees of rotation when rotating to the DOWN detent, e.g. 3 rotates the cassette 3 degrees more than nominal required to get into the detent. In this case the cassette rotated not far enough to arrive in the detent.

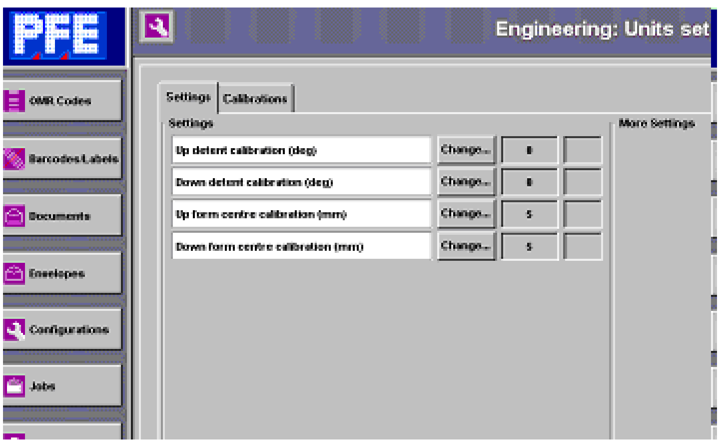


Fig. 3.6

3.2.7 Fault codes

The following fault codes relate to DTI problems. They appear on the screen and show the specific problem, action to take, further help (when Help button is pressed) and ID number.

[FaultId.1851]
Desc="Jam at DTI Infeed Conveyor Entry"
Action="Clear jam, press RUN"
Help="If problem persists call Technical Service. "
Engineer action: Leading edge of document seen at conveyor entry sensor, but not trailing edge. Check for jam or faulty entry sensor.

[FaultId.1852]
Desc="Unexpected document at DTI Infeed Conveyor Entry"
Action="Clear jam, press RUN"
Help="If problem persists call Technical Service. "
Engineer action: Document unexpectedly present at conveyor entry sensor. Check sensor or Maxsys problem.

[FaultId.1853]
Desc="User removed document from DTI Infeed Conveyor"
Action="Press RUN to continue"
Help="If problem persists call Technical Service. "
Engineer action: Trailing edge of document has passed conveyor entry sensor, but has not reached conveyor exit sensor. Check for physical obstruction.

[FaultId.1854]
Desc="Document lost from DTI Infeed Conveyor"
Action="Press RUN to continue"
Help="If problem persists call Technical Service. "
Engineer action: Leading edge of document not seen at conveyor exit sensor. Check exit sensor, confirm operator has not removed document.

[FaultId.1855]
Desc="Jam at DTI Infeed Conveyor Exit"
Action="Clear jam, press RUN"
Help="If problem persists call Technical Service. "
Engineer action: Leading edge of document seen at conveyor exit sensor but not trailing edge - document obstructed or failing to drive.

[FaultId.1856]
Desc="Jam at DTI Cassette-Turnover"
Action="Clear jam, press RUN"
Help="If problem persists call Technical Service. "
Engineer action: Cassette rotation sensor has not seen change in state which should occur when cassette rotates. Check sensor, and also cassette for free rotation.

3.2.7 Fault codes cont

[FaultId.1857]
Desc="DTI Cassette failed to complete move"
Action="Remove any obstructions from Cassette, press RUN"
Help="If problem persists call Technical Service. "
Engineer action: Cassette has tried to rotate to its home position when initialising machine, and failed to do so. Check cassette in position sensor. Note that this can also occur during machine operation.

[FaultId.1858]
Desc="Unexpected 'Document' command from Maxsys"
Action="Press RUN to continue"
Help="If problem persists call Technical Service. "
Engineer action: Maxsys has incorrectly sent another document when DTI is not ready. Probable Maxsys fault, but check communications cable.

[FaultId.1859]
Desc="Maxsys returned NAK response"
Action="Press RUN to continue"
Help="If problem persists call Technical Service. "
Engineer action: Undefined communications problem between Maximailer and Maxsys. Check communications cable for poor connection or damage.

[FaultId.1860]
Desc="Maxsys communications timeout"
Action="Check serial cable connections. Switch off both machines and re-try"
Help="If problem persists call Technical Service. "
Engineer action: Undefined communications problem between Maximailer and Maxsys. Check communications cable for poor connection or damage.

[FaultId.1861]
Desc="Document 'aborted' by Maxsys"
Action="Remove document from DTI Infeed Conveyor, press RUN"
Help="If problem persists call Technical Service. "
Engineer action: Maxsys error - job aborted by Maxsys immediately after sending a document to DTI.

[FaultId.1862]
Desc="'Cassette-in-position' sensor permanently blocked"
Action="Remove any obstructions and re-try"
Help="If problem persists call Technical Service. "
Engineer action: Cassette rotation sensor is working correctly, but cassette-in-position sensor is blocked when it should be clear - check the sensor.

3.2.7 Fault codes cont.

[FaultId.1863]
Desc="Unexpected document at DTI Infeed Conveyor Exit"
Action="Clear jam, press RUN"
Help="If problem persists call Technical Service. "
Engineer action: Document not expected on DTI conveyor, but conveyor exit sensor is blocked - check sensor or clear spurious document.

Faults originated by Maxsys

[FaultId.1900]
Desc="Maxsys job change request permission denied"
Action="Check roles and permissions for operator"
Help="If problem persists call Technical Service. "
Engineer action: Incompatiblility between jobs on Maximailer and Maxsys. Correct the offending job.

[FaultId.1901]
Desc="Previous job had not autoended and has been aborted"
Action="Clear this error and then press RESUME on Maxsys"
Help="If problem persists call Technical Service. "
Engineer action: Maxsys not ready for unknown reason.

[FaultId.1902]
Desc="Invalid Job ID from Maxsys"
Action="Check job configuration consistency on Maxsys and MaximMailer Plus"
Help="If problem persists call Technical Service. "
Engineer action: Incompatiblility between jobs on Maximailer and Maxsys. Correct the offending job.

[FaultId.1903]
Desc="Invalid job settings"
Action="Check and correct job settings"
Help="If problem persists call Technical Service. "
Engineer action: Problem with Maxsys job.

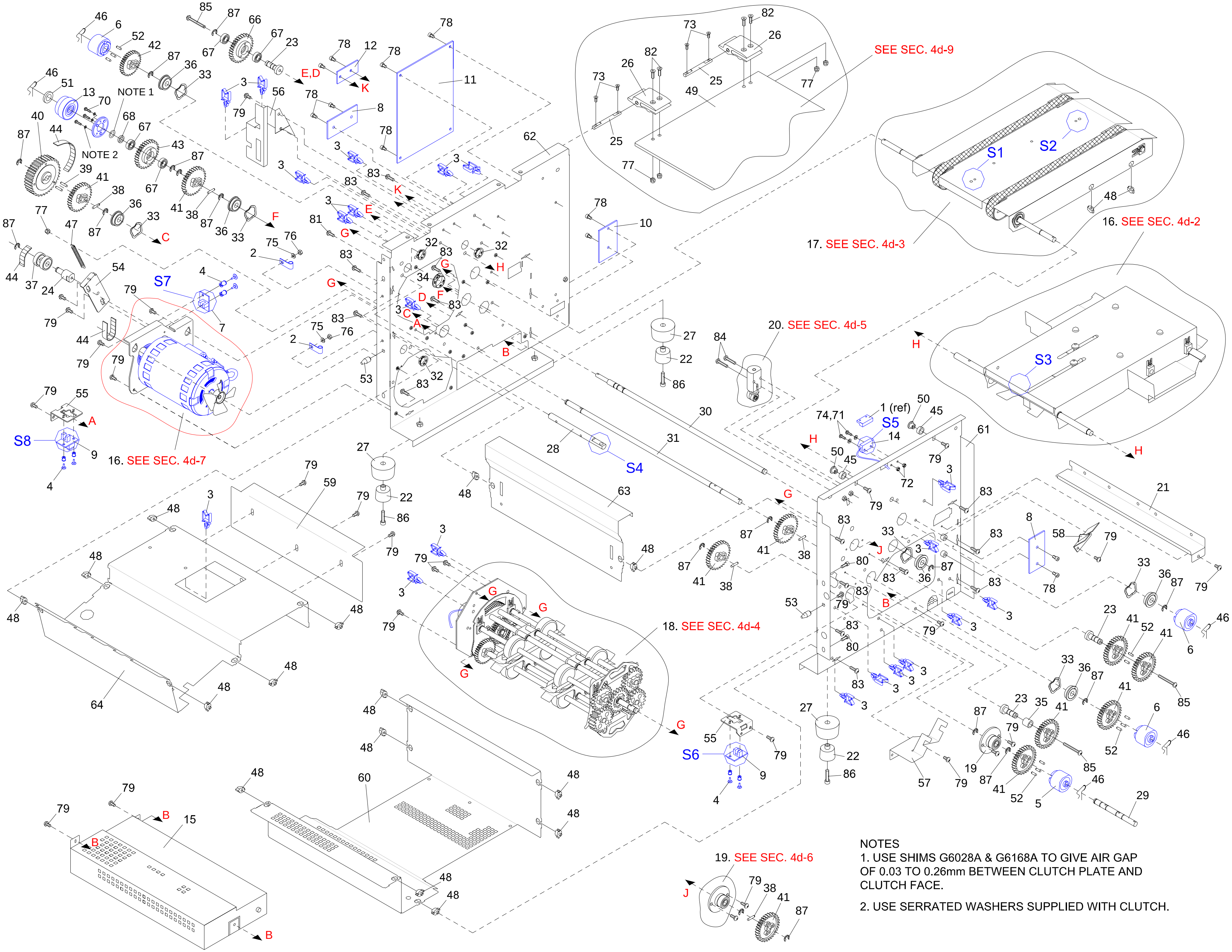
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Section 4

Exploded Views

Description	Page

4.1 - Datacard Turnover Interface Assy A5136A



NOTES
1. USE SHIMS G6028A & G6168A TO GIVE AIR GAP OF 0.03 TO 0.26mm BETWEEN CLUTCH PLATE AND CLUTCH FACE.
2. USE SERRATED WASHERS SUPPLIED WITH CLUTCH.

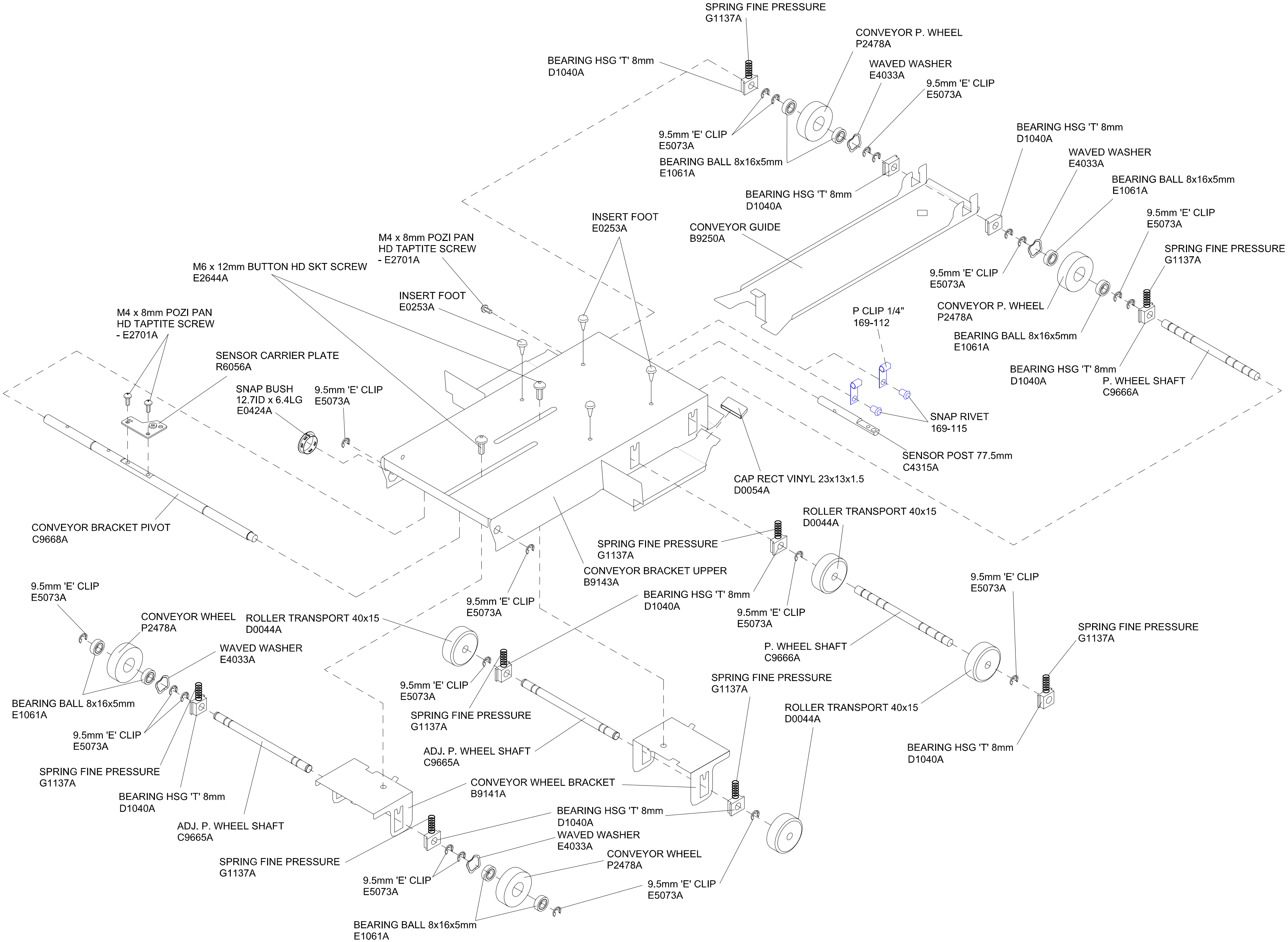
Item	Description	Part No.	Qty.
1	SWITCH MAGNET SMALL	131-824	1
2	P CLIP 1/4”	169-112	2
3	CABLE RESTRAINT MEDIUM	169-141	19
4	RIVET 3.5mm 2-3mm GRIP	169-145	6
5	CLUTCH EC30 CW 8mm 24V	179-213	1
6	CLUTCH EC30 CCW 8mm 24V	179-214	3
7	PCB ASSY HI RES SENSOR	180-746	1
8	PCB SPLIT 5 SEN 5 SOL H/D	180-759	2
9	PCB WIDEBODY DISK SENSOR	180-776	2
10	PCB RS232 INTERFACE	180-783	1
11	PCB ASSY AM4 TWR/FEEDER	180-785	1
12	PCB LONG RANGE SENSOR	180-790	1
13	CLUTCH W/D 179-154 2WXH LENZE 03	181-132	1
14	REED SW SML 3WSM	182-417	1
15	PSU	184-168	1
16	CONVEYOR UPPER DTI	A7263A	1
17	CONVEYOR LOWER DTI	A7264A	1
18	TURNOVER CASSETTE DTI	A7265A	1
19	STUB HOUSING SHORT ASSY	A7266A	2
20	CASSETTE DETENT ASSY	A7293A	1
21	RIBBON BRIDGE	B7755A	1
22	FOOT SPIGOT	C2579A	4
23	IDLER POST	C2586A	4
24	BELT TENSIONER POST	C3493A	1
25	HINGE PIN	C4366A	2
26	HINGE	C6358E	2
27	RUBBER FOOT	C8078A	4
28	SENSOR BAR	C9661A	1
29	CASSETTE DRIVE SHAFT	C9664A	1
30	MAIN IDLER SHAFT	C9670A	1
31	PRIMARY DRIVE SHAFT	C9671A	1
32	BUSH SNAP 12.7 IDx10.3L	E0296A	3
33	WASHER WAVED 23mmID	E0367A	6
34	BUSH SNAP 17.5IDx11.5L	E0424A	1
35	OILITE PL 8x12x12mm	E1038A	1
36	BEARING FL 8x22x7mm	E1078A	6
37	BEARING BALL 8x22x7mm	E1114A	2
38	PIN DOWEL M3 x 14mm	E5071A	6
39	PIN DOWEL M3 x 12mm	E5118A	2
40	PULLEY 104T S2M M/DRIVE	F1404A	1
41	GEAR 48Tx8mm 1.0M	F4151A	11
42	GEAR 35Tx8mm 1.0M	F4182A	1
43	CLUTCH GEAR 48T	F4287A	1
44	BELT 100-S2M-322	F5145A	1
45	WASHER	G0000A	2
46	EC30 CLUTCH PIN	G0167P	5
47	SPRING BRUSH	G1001C	1
48	BRIDGE CLAMP	G4092A	20
49	TOP COVER	G7164A	1
50	COVER STOP SPIGOT	P2175A	2
51	CLUTCH WASHER	P2225A	1
52	EC30 PIN	P2232A	9
53	MODULE LOCATION SPIGOT	P2247A	2
54	TENSIONER BRACKET	R2890A	1
55	SENSOR BRACKET	R2893A	2
56	EC30 x 2 DRIVES BRACKET	R2894A	1
57	EC30 x 2 OP. BRACKET	R2895A	1
58	BRAKE BRACKET	R2896A	1
59	CONVEYOR SUPPORT	R2901A	1
60	CHASSIS LOWER BRIDGE	R2903A	1
61	SIDE PLATE OP	R2905A	1
62	SIDE PLATE DRIVES	R2906A	1
63	CHASSIS BRIDGE OUTPUT	R2907S	1
64	CHASSIS UPPER BRIDGE	R2908A	1
65	OUTPUT GUIDE	B9304A	1
66	GEAR IDLER 487 1M	F4288A	2
67	BEARING BALL 8 x 16 x 5mm	E1061A	6
68	SPACER 03 CLUTCH	P2534A	1

4.1 - Datacard Turnover Interface Assy A5136A

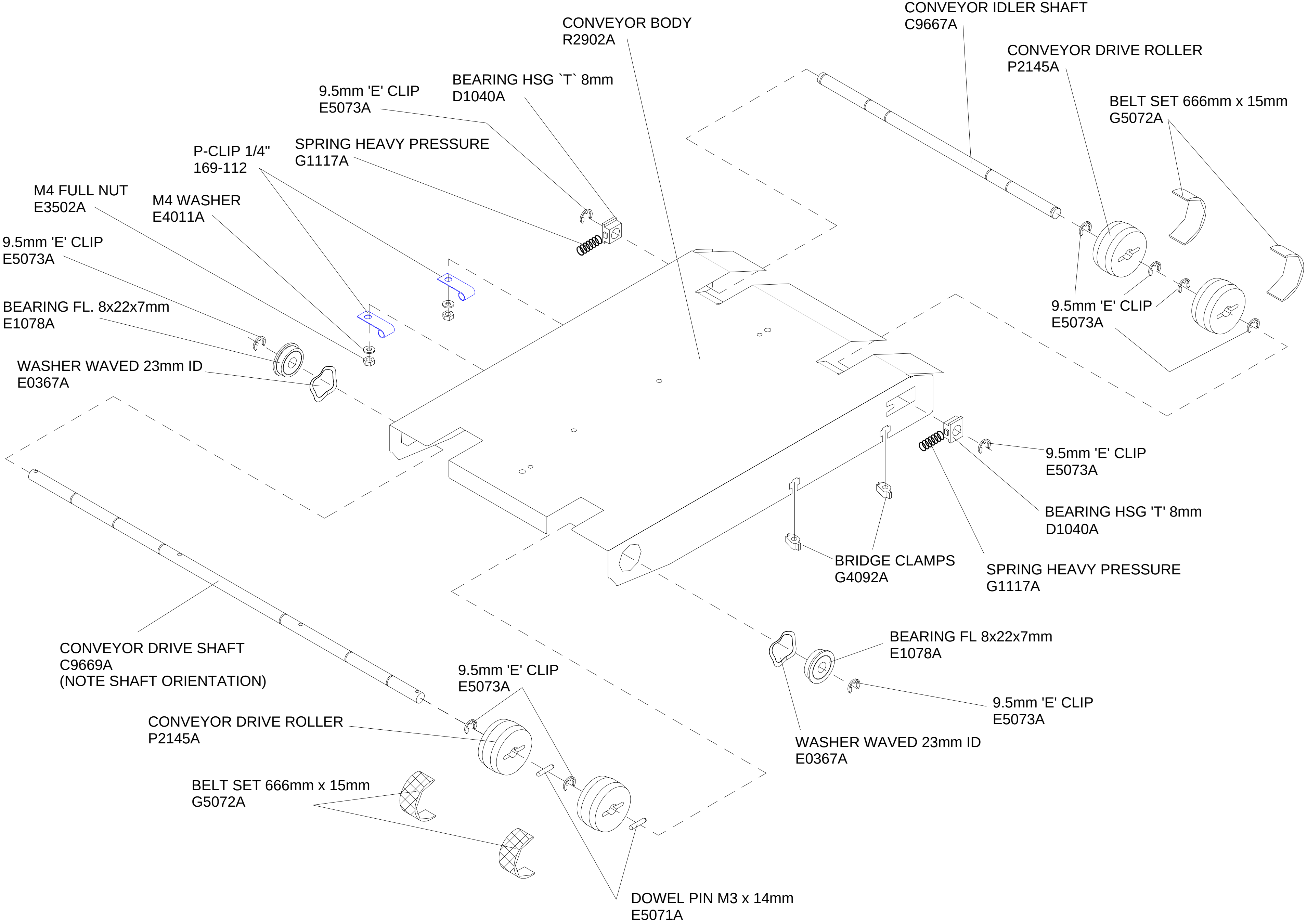
FIXINGS

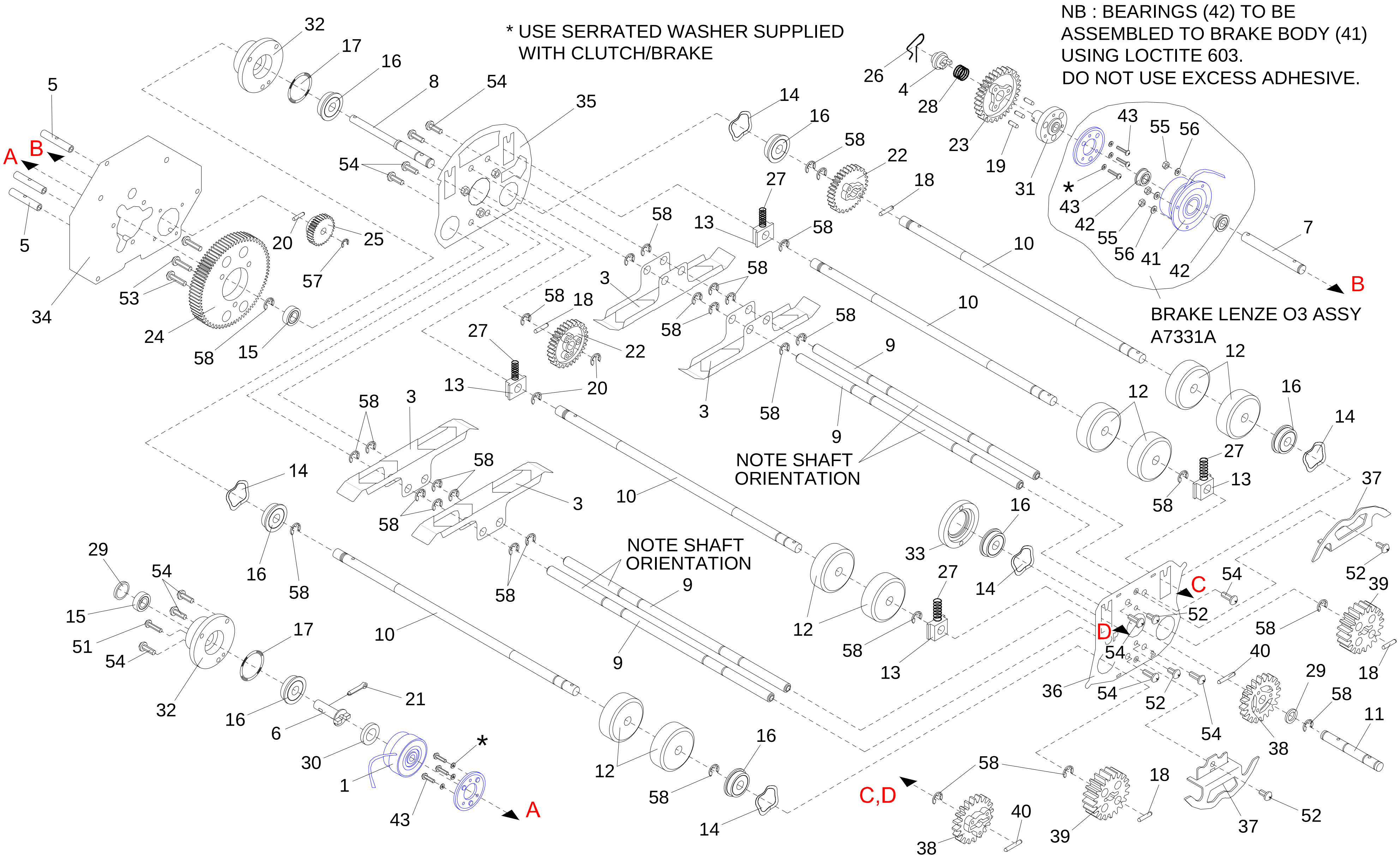
tem	Description	Part No.	Qty.
69	M2.5 INT S/PROOF WASHER	E4019A	A/R
70	M2.5 x 10mm POZI PAN HD T/T SCREW	E2715A	A/R
71	M3 WASHER	E4009A	A/R
72	M3 NYLOC NUT	E3557A	A/R
73	M3 x 8mm CSK HD SCREW	E2502A	A/R
74	M3 x 10mm PAN HD SCREW	E2559A	A/R
75	M4 WASHER	E4001A	A/R
76	M4 NUT	E3502A	A/R
77	M4 NYLOC NUT	E3505A	A/R
78	M4 x 6mm SKT CAP HD SCREW	E2512A	A/R
79	M4 x 8mm POZI PAN HD TAPTITE SCREW	E2701A	A/R
80	M5 x 10 CAP HD SCREW	E2516A	A/R
81	M4 x 10mm POZI PAN HD SCREW	E2704A	A/R
82	M4 x 12mm CSK HD SCREW	E2564A	A/R
83	M4 x 12mm POZI PAN HD TAPTITE SCREW	E2730A	A/R
84	M4 x 20mm POZI PAN HD SCREW	E2716A	A/R
85	M4 x 35mm POZI PAN HD SCREW	E2702A	A/R
86	M5 x 20mm POZI PAN HD SCREW	E2809A	A/R
87	9.5mm `E` CLIP	E5073A	A/R
88	M4 EXT. FANTAIL WASHER	E4036A	A/R

4.2 - Conveyor Upper DTI Assy A7263A



4.3 - Conveyor Lower DTI Assy A7264A





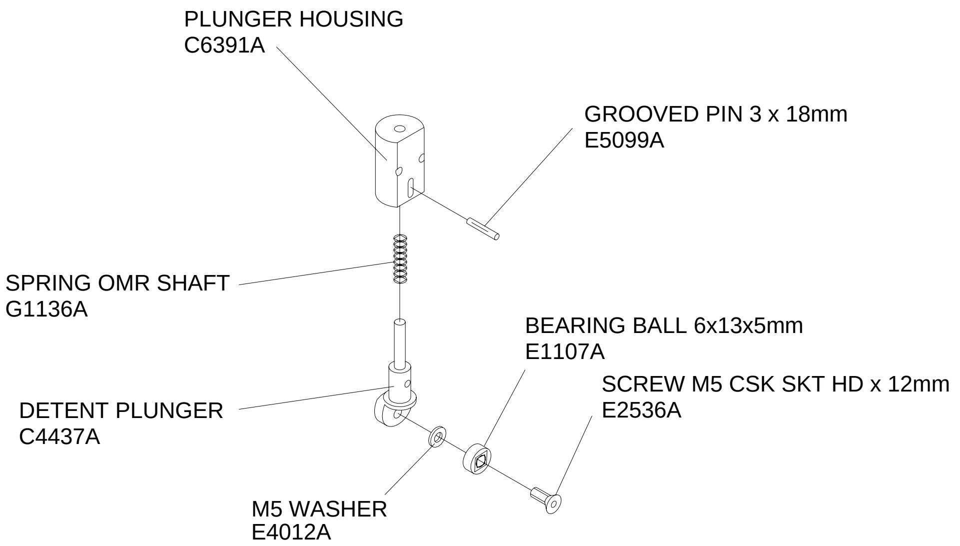
4.4 - Turnover Cassette DTI Assy A7265A

4.4 - Turnover Cassette DTI Assy A7265A

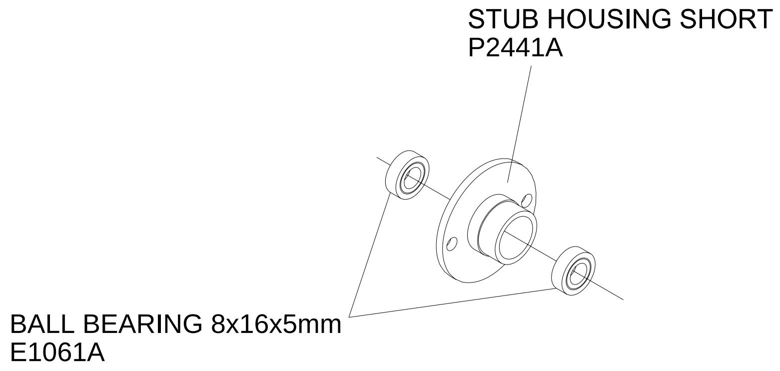
Item	Description	Part No.	Qty
1	CLUTCH W/D 179-154 2WXH LENZE 03	181-132	1
2	BRAKE LENZE 03 ASSY	A7331A	1
3	GUIDE SKI	B9138A	4
4	CLUTCH DRIVE DOG	C2828A	1
5	HUB STAND OFF	C3630A	3
6	CLUTCH SLEEVE	C3631A	1
7	CASSETTE BRAKE SHAFT	C4430A	1
8	CASSETTE TURN SHAFT	C4431A	1
9	CASSETTE TIE BAR	C9662A	4
10	CASSETTE TRANSPORT SHAFT	C9663A	4
11	CASSETTE DRIVE STUB	C4493A	1
12	ROLLER TRANSPORT 40x15	D0044A	8
13	BEARING HSG `T` 8mm MIN	D1040A	4
14	WASHER WAVED 23mm ID	E0367A	5
15	BEARING BALL 8x16x5	E1061A	2
16	BEARING FL 8x22x7	E1078A	7
17	WASHER PL WAVED 0.64 DIA	E4053A	2
18	DOWEL PIN M3 x 14mm	E5071A	4
19	DOWEL PIN M3 x 8mm	E5074A	3
20	PIN DOWEL M2.5 x 12mm GROOVED	E5082A	1
21	PIN SPLIT 2.5D x 20 LG S/S SPLIT COTTER PIN	E5121A	1
22	GEAR 40Tx8mm 1.0M	F4150A	2
23	GEAR 48Tx9.9mm 1.0M	F4201A	1
24	GEAR 80T 1M x 30mm	F4277A	1
25	GEAR 20T 1M x 6mm	F4278A	1
26	CLUTCH PIN	G0079A	1
27	SPRING LIGHT PRESSURE	G1111A	4
28	UPPER CONVEYOR SPRING	G1178A	1
29	WASHER	G6002A	1
30	CLUTCH WASHER	P2225A	1
31	BRAKE HUB	P2430A	1
32	CASSETTE HUB	P2431A	2
33	BEARING LOCATOR	P2442A	1
34	CASSETTE MOUNTING PLATE	R2897A	1
35	CASSETTE SIDE PLATE DRIVES	R2898A	1
36	CASSETTE SIDE PLATE OP	R2899A	1
37	CAM BRACKET	R6012A	2

Item	Description	Part No.	Qty
38	GEAR 20Tx8mm 2.0M	F4134A	3
39	GEAR 20Tx8mm 2.0M U/CUT	F4284A	2
40	DOWEL PIN M3 x 18mm	E5098A	3
	BRAKE LENZE 03 ASSY	**A7331A**	**x1**
41	BRAKE LENZE 03	181-133*	1
42	BEARING FL 6x13x5	E1108A*	2
43	M2.5 x 6mm SL PAN HD SCREW	E2647A*	A/R
44	SERRATED CONE WASHER (PART OF 41)	E4019A*	A/R
	FIXINGS		
51	M2.5 x 16mm POZI PAN HD SCREW T/T	E2675A	A/R
52	M4 x 8mm TAPTITE SCREW	E2701A	A/R
53	M4 x 16mm POZI PAN HD SCREW T/T	E2714A	A/R
54	M4 x 12mm POZI PAN HD SCREW T/T	E2730A	A/R
55	M3 NUT	E3500A	A/R
56	M3 WASHER	E4009A	A/R
57	7mm `E` CLIP	E5076A	A/R
58	9.5mm `E` CLIP	E5073A	A/R

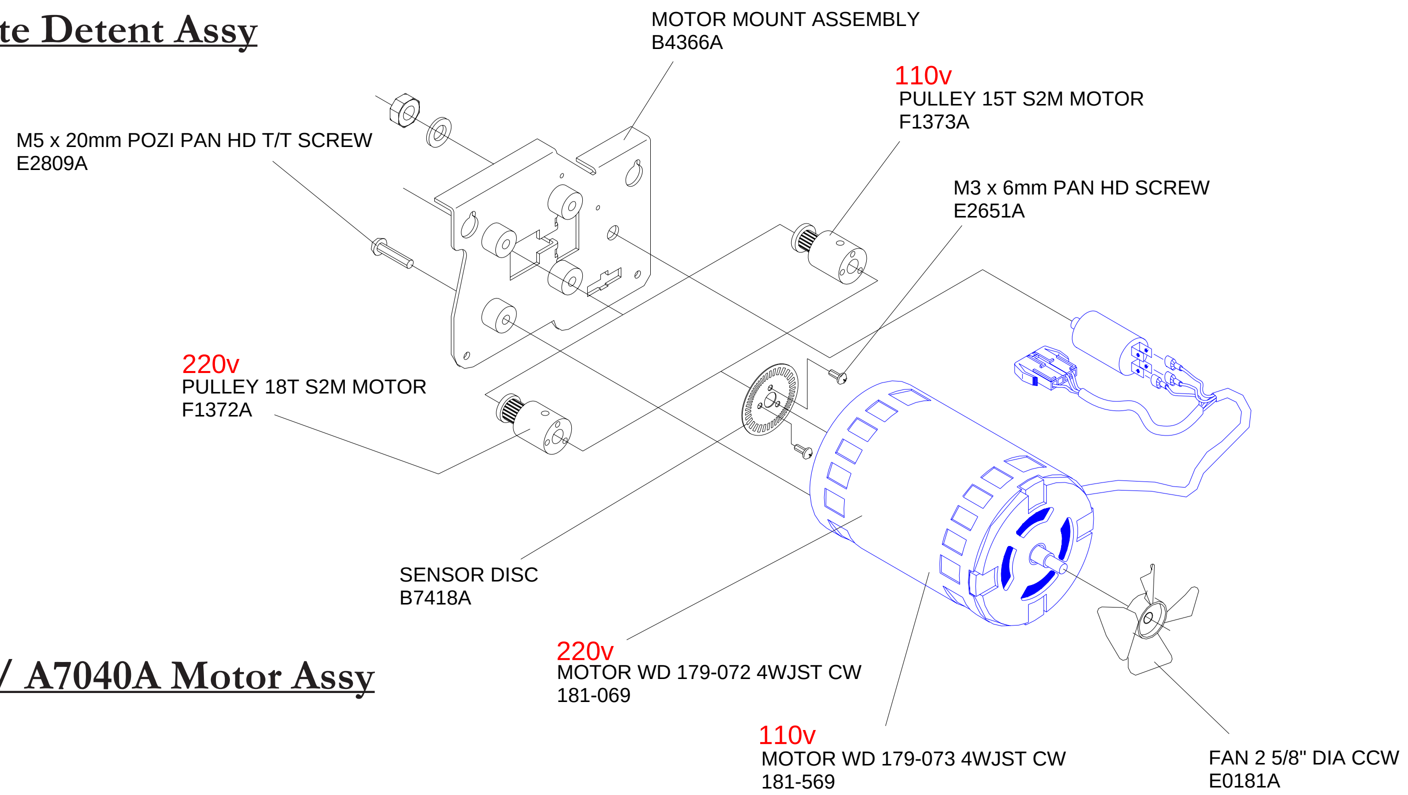
*SUPPLIED PRE-ASSEMBLED WITH LOCTITED BEARING WHEN SUPPLIED AS SPARES ASSEMBLY A7331A.



4.5 - A7293A Cassette Detent Assy

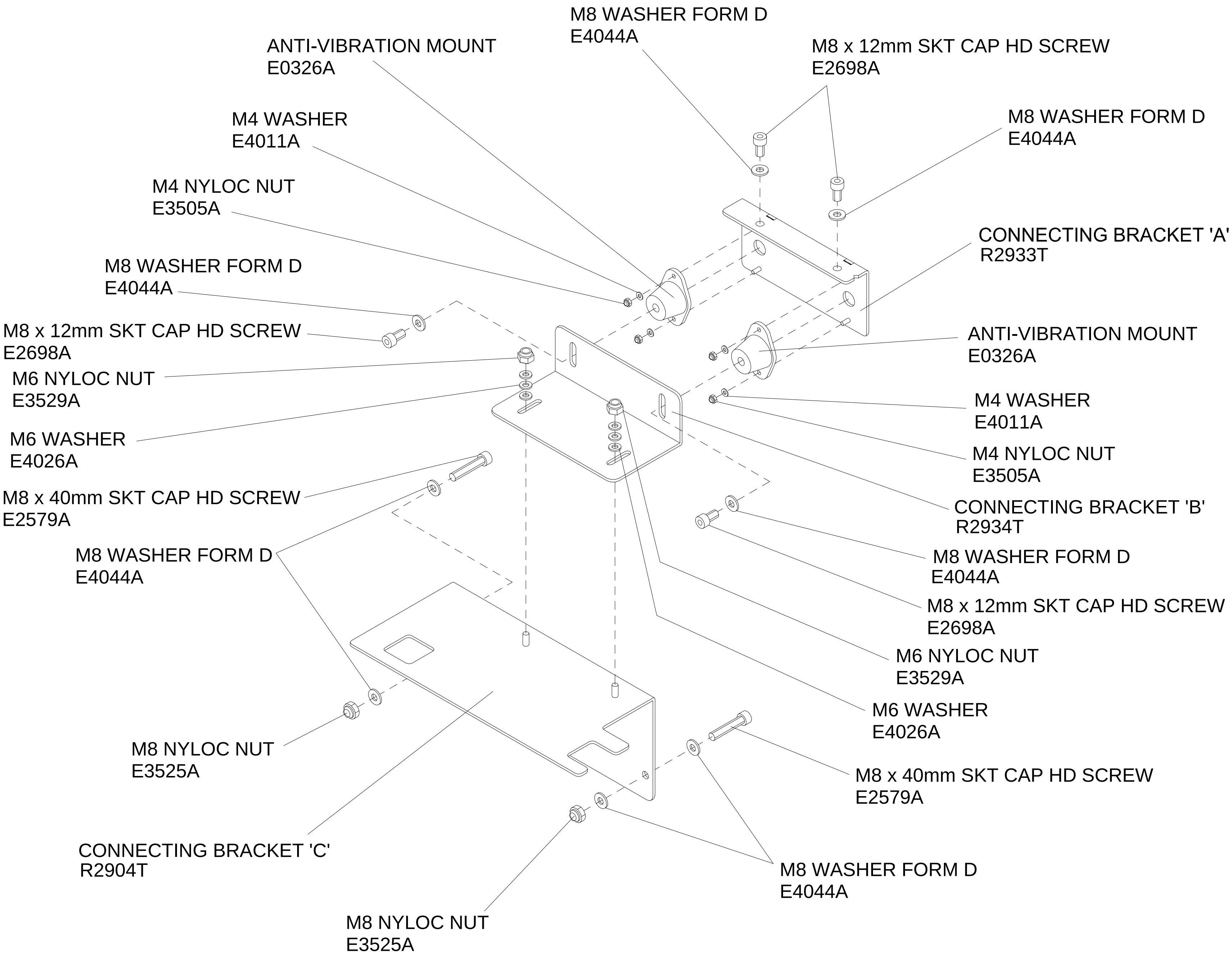


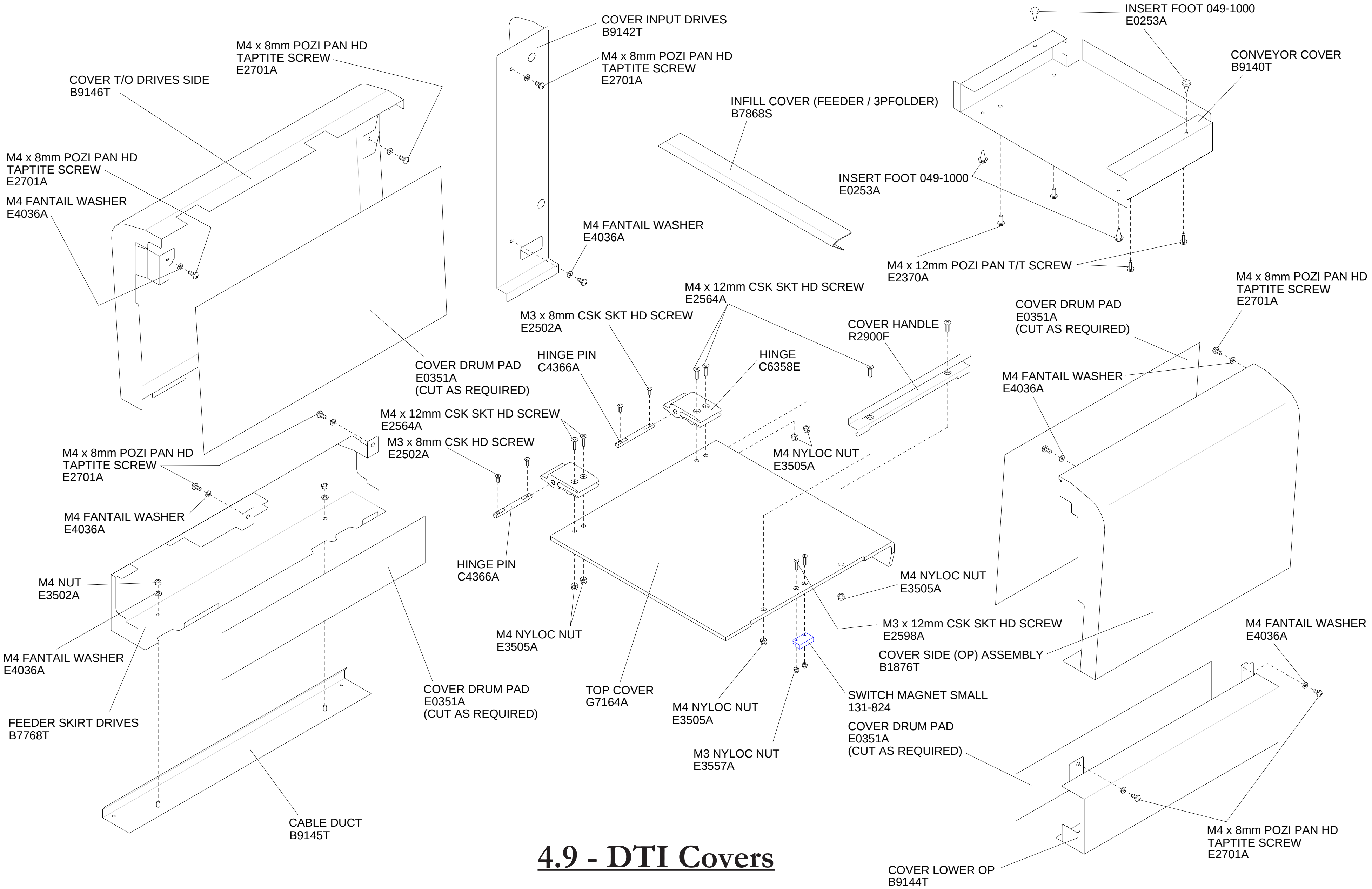
4.6 - A7266A Stub Housing Short Assy



4.7 - A7039A / A7040A Motor Assy

4.8 - DTI Connecting Bracket Kit A3288A





4.9 - DTI Covers

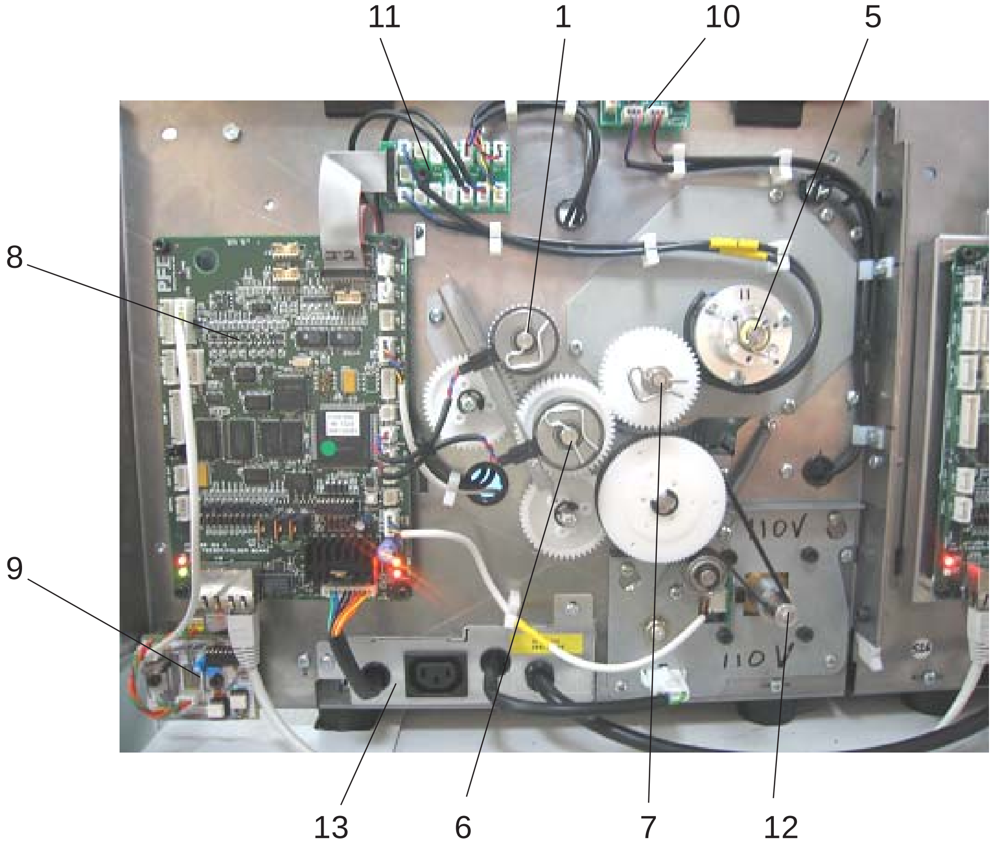
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Section 5

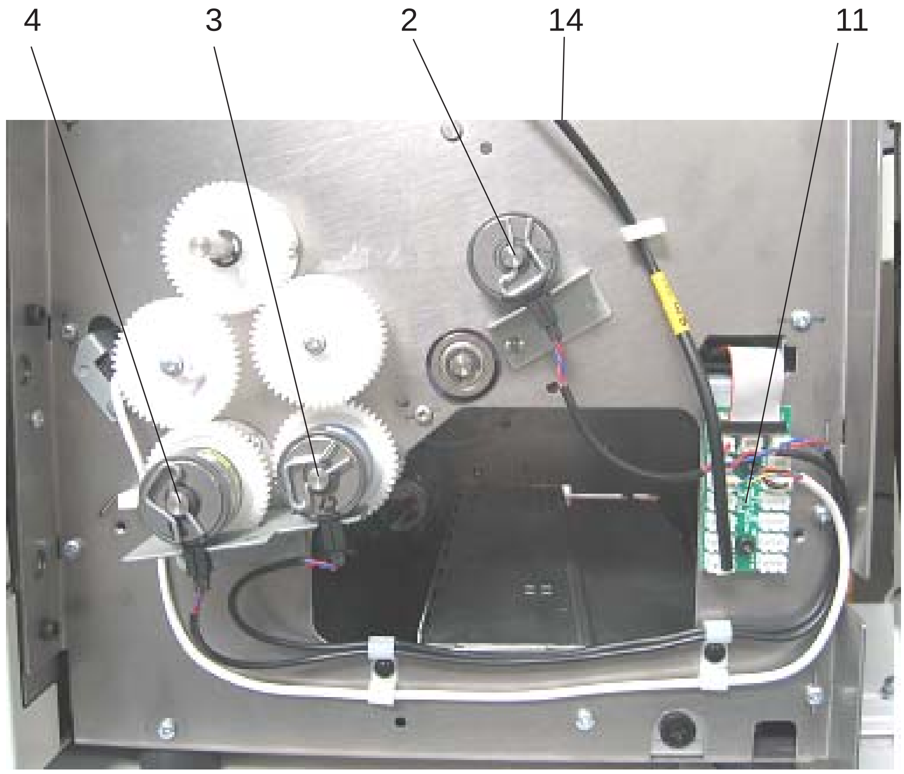
Electrical
and
Circuit Diagrams

Description	Page

5.2 LOCATION OF COMPONENTS



DRIVE SIDE



OPERATOR SIDE

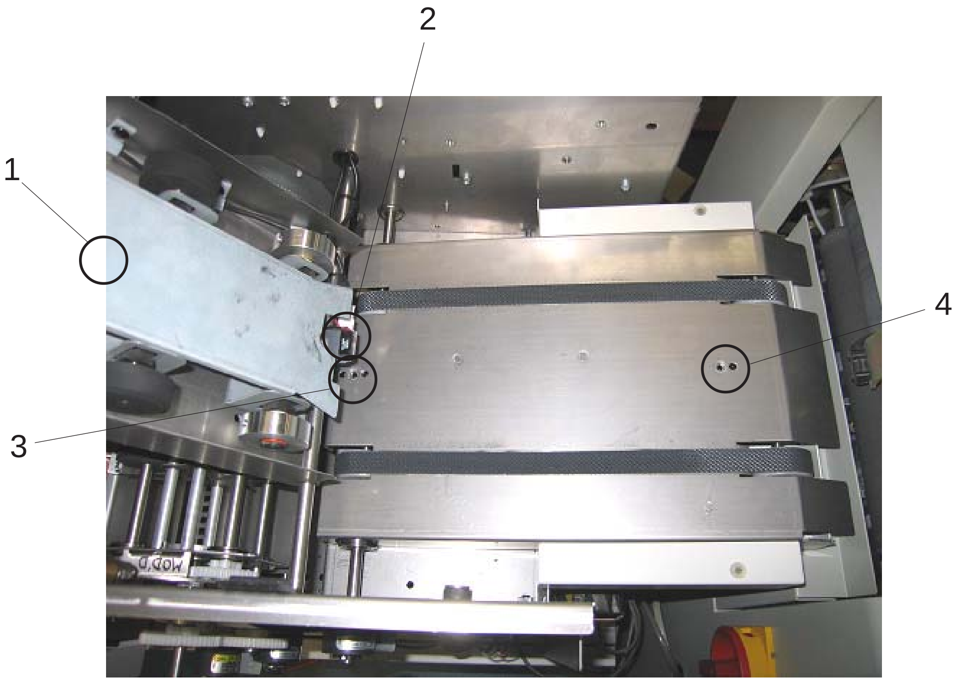
See following page for component descriptions.

5.1 LOCATION OF COMPONENTS (cont)

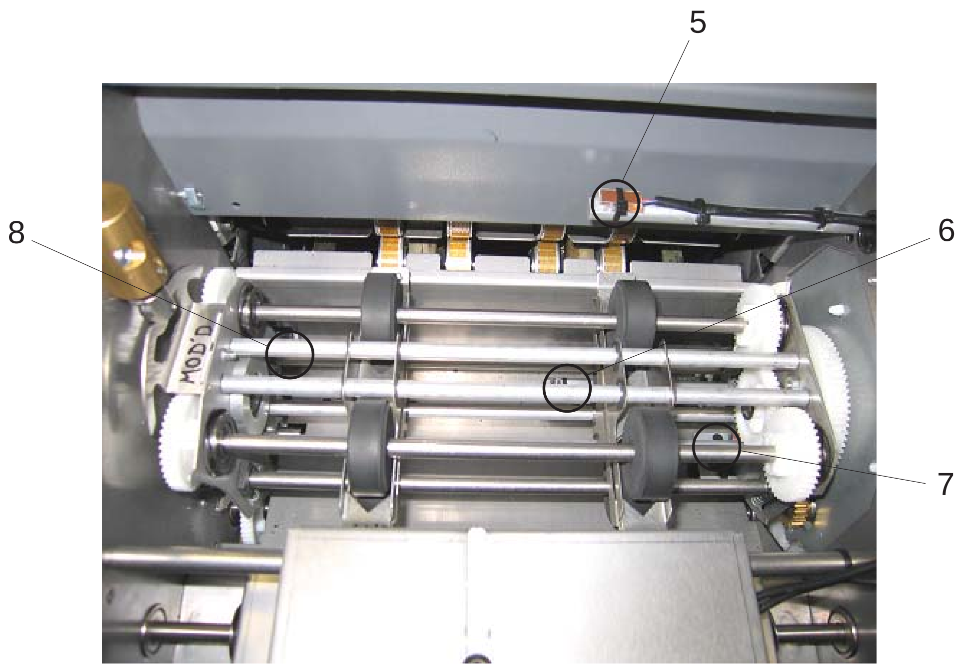
Item	Part No.	Description	Qty.	Remarks
1	179-214	Clutch EC30 CCW 8mm 24v	1	Conveyor Clutch
2	179-214	Clutch EC30 CCW 8mm 24v	1	Conveyor Brake
3	179-214	Clutch EC30 CCW 8mm 24v	1	Cassette Reverse Clutch
4	179-213	Clutch EC30 CW 8mm 24v	1	Cassette Forward Clutch
5	181-132	Clutch W/D 2WXH Lenze 03	1	Cassette Drive Brake
6	181-132	Clutch W/D 2WXH Lenze 03	1	Cassette Rotation Clutch
7	181-133*	Brake W/D 2WXH Lenze 03	1	Cassette Rotation Brake
8	180-785	PCB AM4 Feeder	1	
9	180-783	PCB RS232 Interface	1	
10	180-790	PCB Long Range Sensor	1	
11	180-759	PCB Splitter	2	
12	181-069	Motor 179-072 CW (220v)	1	
		or		
12a	181-569	Motor 179-073 CW (110v)	1	
13	184-168	PSU Assy, AM4 Feeder	1	
14	182-418	Reed Switch 3WXH UL	1	Attached to cable shown

* Clutch 181-133 forms part of assembly A7331A which includes 2 x bearings E1108A, secured with Loctite 603. If replacement is required, A7331A should be ordered.

5.2 LOCATION OF SENSORS



CONVEYOR SENSORS



CASSETTE SENSORS

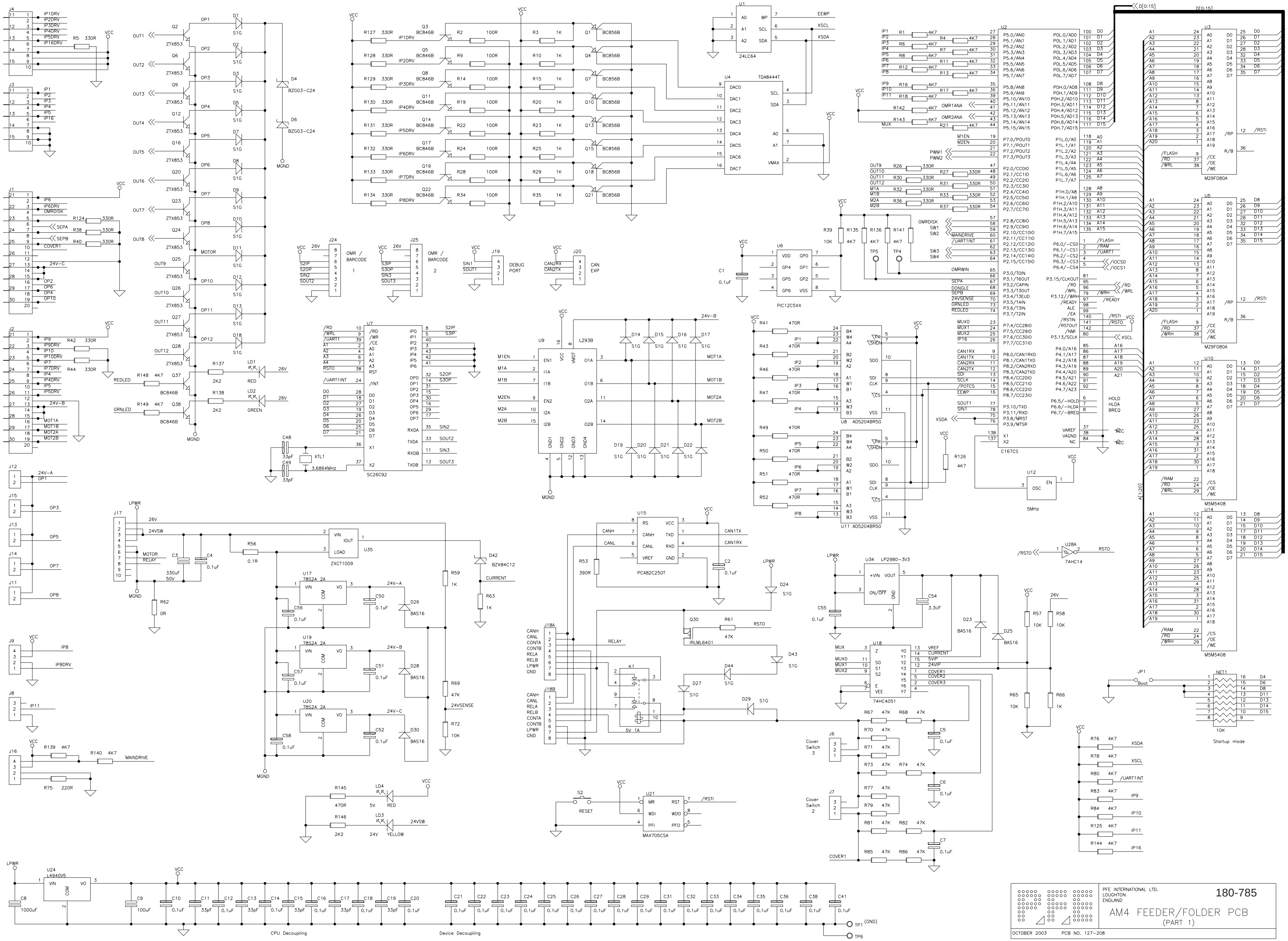
See following page for sensor descriptions.

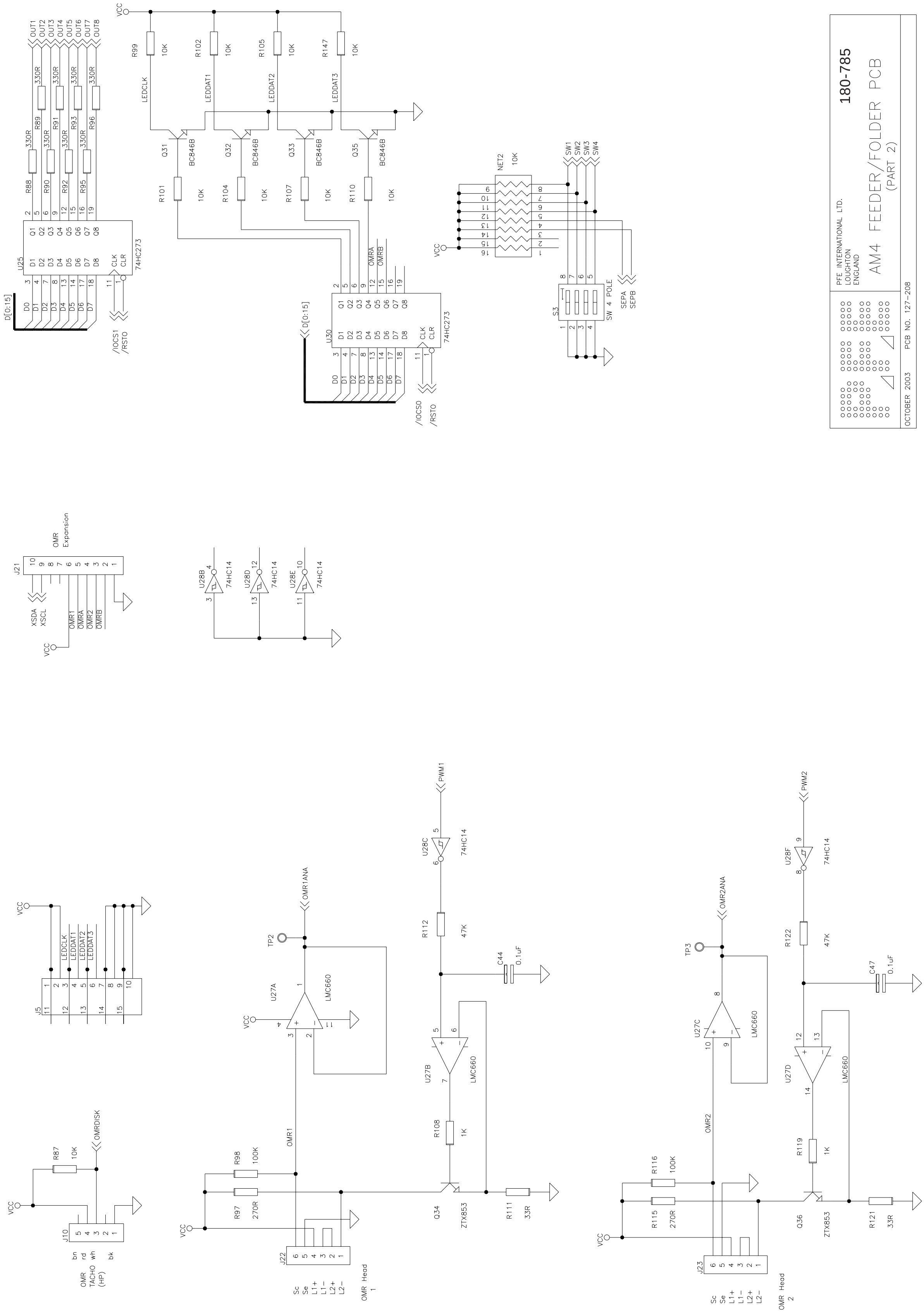
5.2 LOCATION OF SENSORS (cont)

Item	Part No.	Description	Conn.	on PCB
1	182-337	Conveyor Entry TX	J6	Splitter 2
2	182-443S	Conveyor Exit TX	J8	Splitter 2
3	182-339	Conveyor Exit RX	J7	Splitter 2
4	182-339	Conveyor Entry RX	J5	Splitter 2
5	117-240[1]	Cassette Exit RX	J1	L/R Sensor
6	117-240[2]	Cassette Exit RX	J2	L/R Sensor
7	180-776[3]	Cassette Down Flag	J9	Module
8	180-776[4]	Cassette in Position Flag	J1/J2	Splitter 1

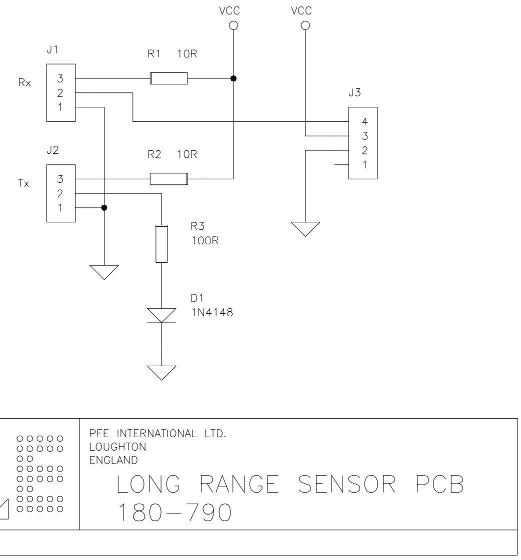
[1] Sensor is separable from lead 182-665. TX/RX Sensors supplied as a pair.
[2] Sensor is separable from lead 182-664. TX/RX Sensors supplied as a pair.
[3] Sensor is separable from lead 182-416.
[4] Sensor is separable from lead 182-728.

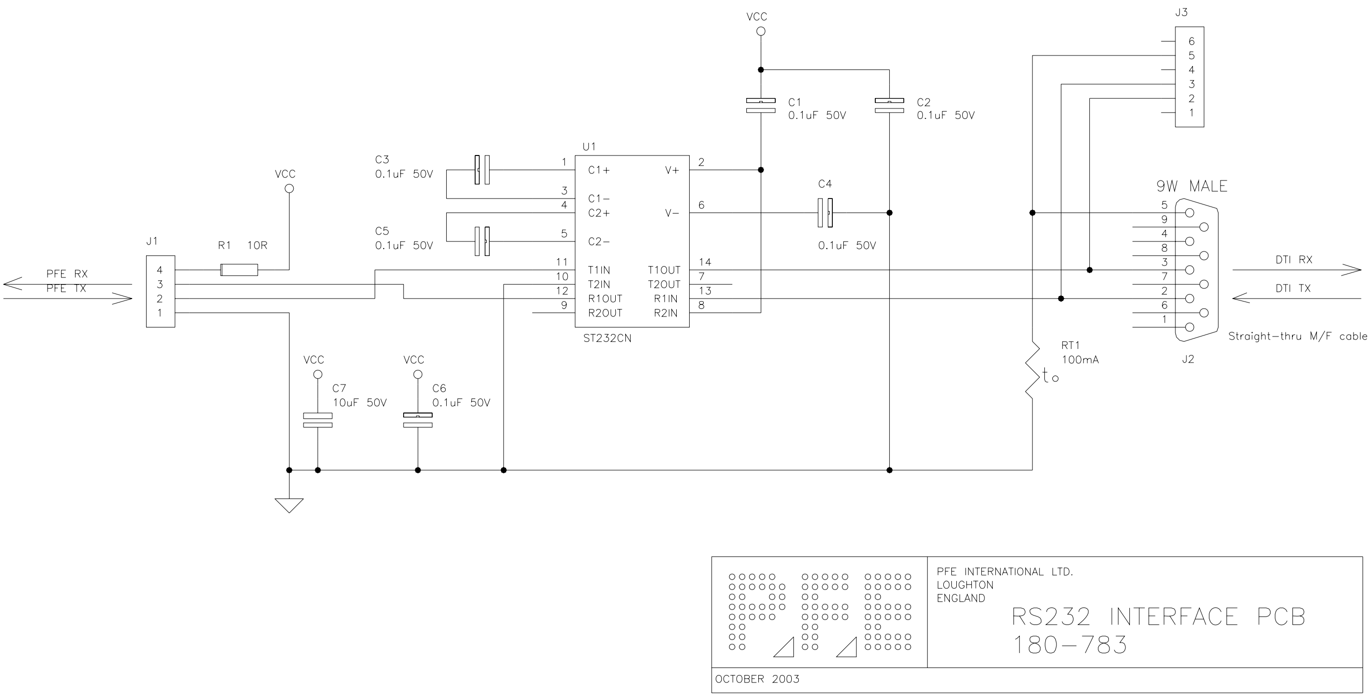
5.3 Feeder PCB Circuit Diagram (Part 1)



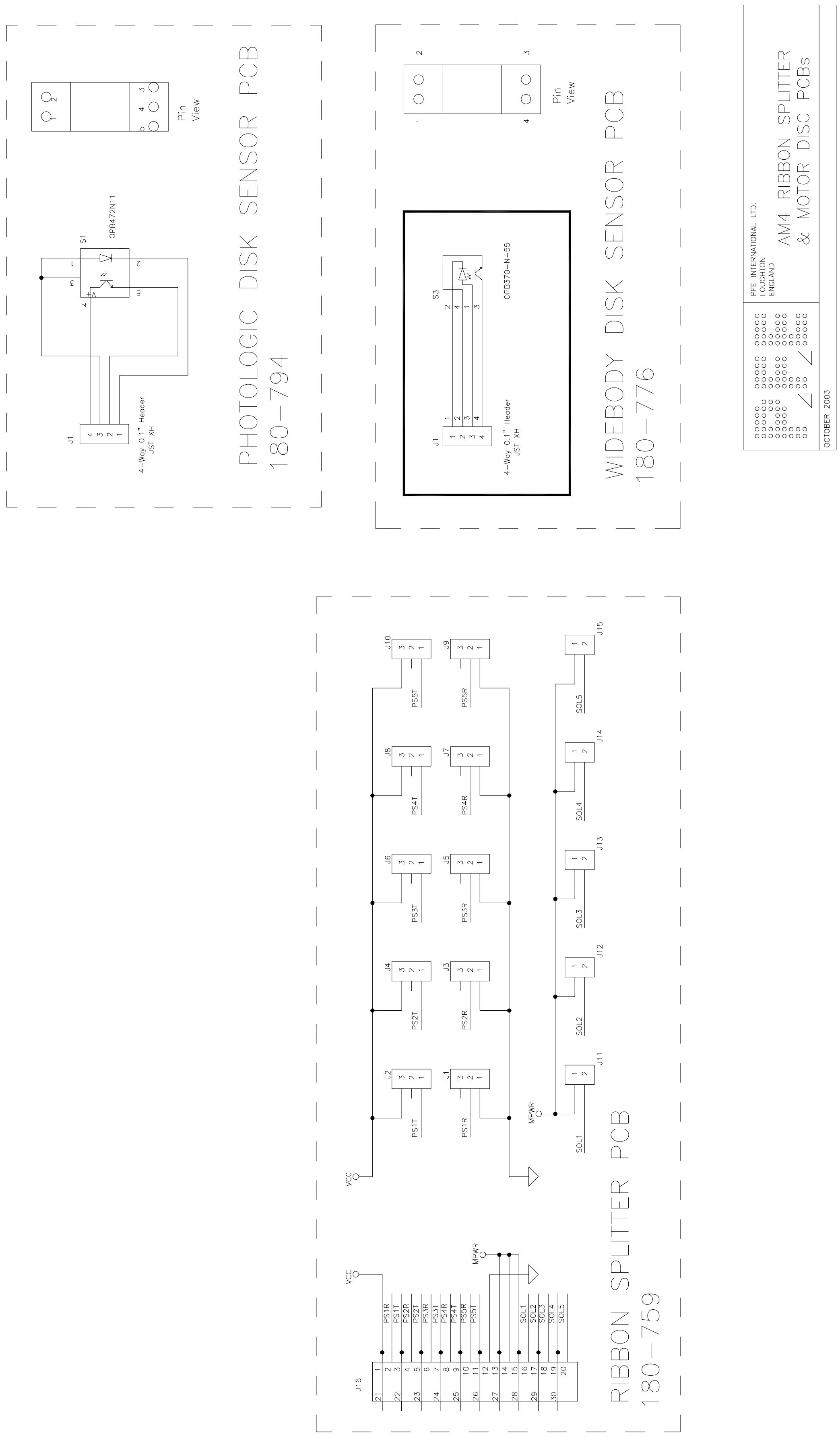


5.3 Feeder PCB Circuit Diagram (Part 2)



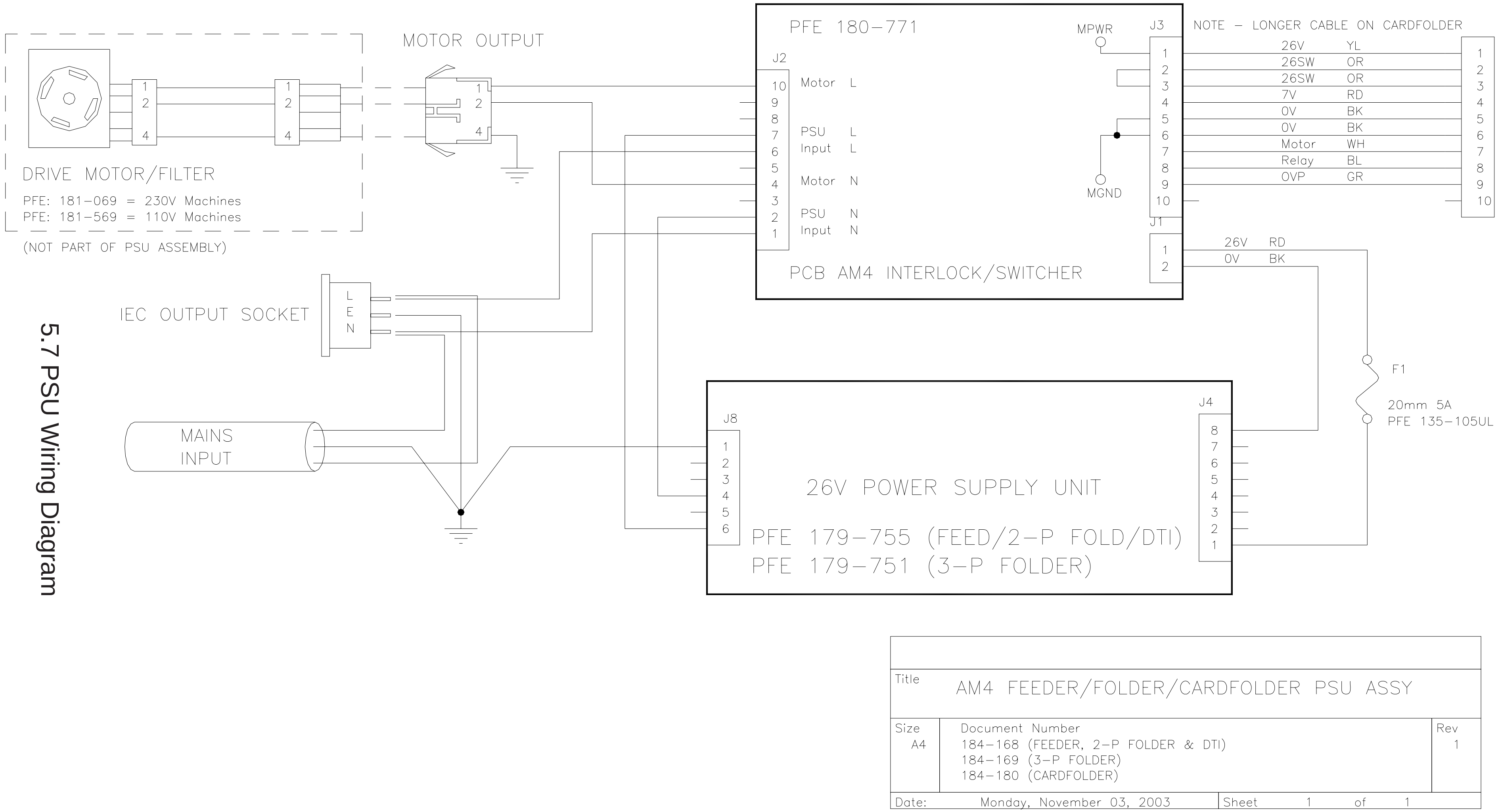


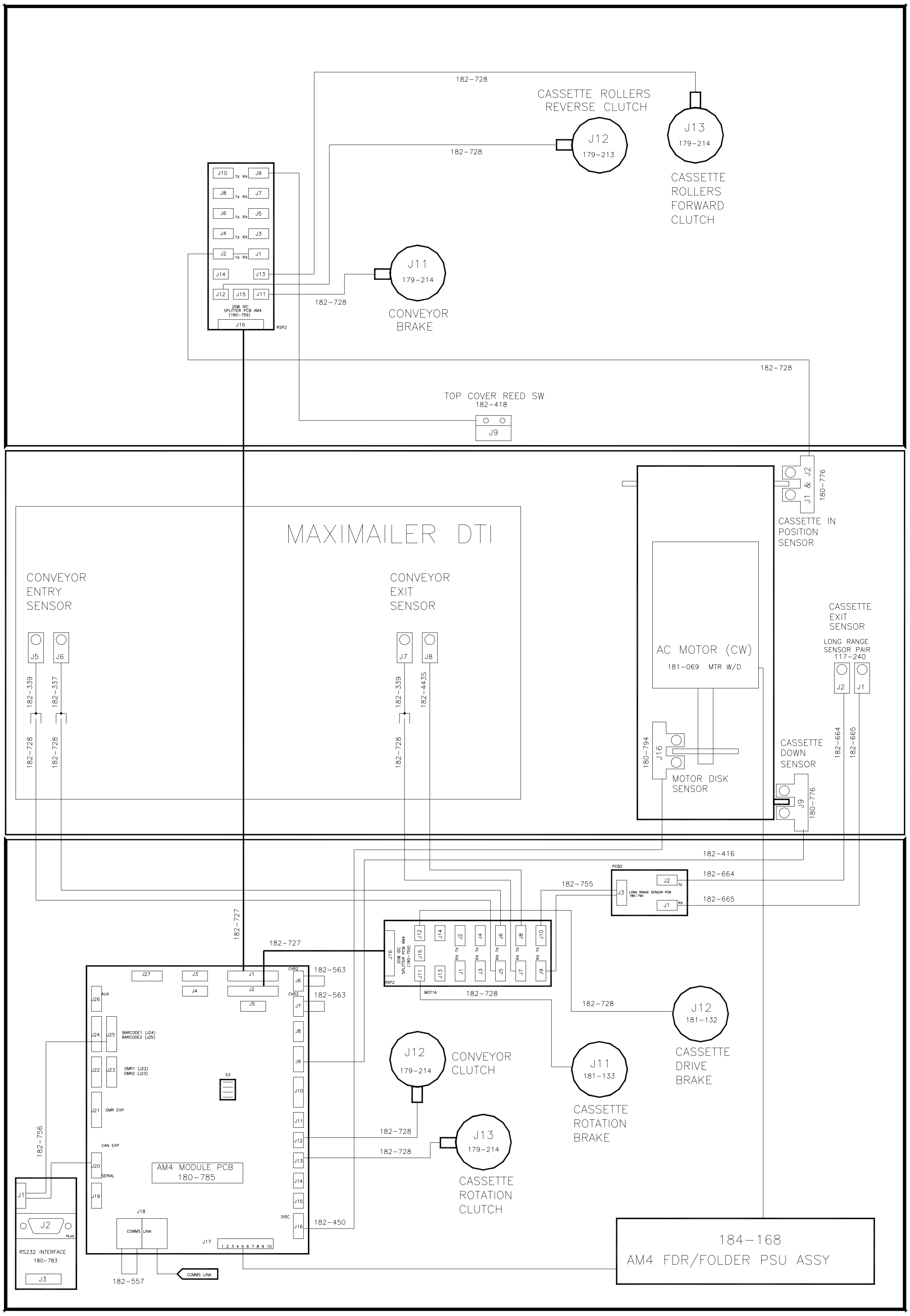
5.4 Long Range Sensor PCB Circuit Diagram
5.5 RS232 Interface PCB Circuit Diagram



5.6 Ribbon Splitter & Disk Sensor PCB Circuit Diagrams

5.7 PSU Wiring Diagram





5.8 Machine Wiring Diagram

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